TRANSACTIONS

OF THE

Massachusetts Horticultural Society,

FOR THE YEAR 1881.

PART I.

BOSTON:
PRINTED FOR THE SOCIETY.
1881.

The Committee on Publication and Discussion, take this opportunity to repeat what they have heretofore stated, that the Society is not to be held responsible for the certainty of the statements, the correctness of the opinions, or the accuracy of the nomenclature in the papers and discussions now or before published, all of which must rest on the credit or judgment of the respective writers or speakers, the Society undertaking only to present these papers and discussions, or the substance of them, correctly. The award of a prize or gratuity for an Essay is not to be understood as implying that the Committee approve it in every particular, but only that they believe it calculated, *on the whole*, to promote the science or art of Horticulture.

BENJAMIN G. SMITH, *Chairman.*

TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

BUSINESS MEETING.

SATURDAY, January 1, 1881.

A duly notified stated meeting was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair.

The President delivered his annual address, as follows :—

Ladies and Gentlemen of the Massachusetts Horticultural Society:

In accordance with the usages of the Society we have assembled at the opening of the year to review the doings of the past, to rejoice together in what has been accomplished,—to regret our shortcomings, with determined resolves of amendment in the future, — to renew our pledges of devotion to the interests of the Society,—and, with united will, to proceed to do in our day what is rightfully expected of us, as successors of the good men, who in wisdom and liberality founded, established, and carried on to success this institution as a means for the material and moral improvement of mankind.

Acknowledging with profound gratitude what has been done by the departed, as well as by those who now live to receive our thanks, and to counsel and cheer us in the performance of duty, let us see what our situation is at the present time, and consider what is incumbent upon us to do, that we may perpetuate and enlarge the usefulness of this Society for the advantage of our own as well as of future generations.

By the Treasurer's report, submitted a year since, it appeared that the Society then possessed property of the estimated value of $277,045.23, and it owed $84,500. The debt consisted of $60,000,

secured by a mortgage of our real estate; a loan of $12,000, not bearing interest, payable to Harvard College in 1899, this being the amount we have the use of, by the gift of the late Josiah Stickney, for the purchase of books; a note of $12,000, which we borrowed originally of the Market National Bank, and have paid within a few months by borrowing the same amount for that purpose of another bank; and the sum of $500 due the Committee on Publication.

We depend mainly upon the real estate belonging to the Society, and upon what we annually receive from Mount Auburn to meet our expenses. It will be seen by the above report that we received in 1879 from rents $14,950.80, and from Mount Auburn $2,212.41. Our Treasurer stated that our finances were not self-sustaining at the date of his report last year.

I am happy to inform you that I learn from the Treasurer our financial situation is now somewhat better than it was a year ago. That the income from our real estate for the year 1880 was about $4,000 more than it was the previous year, and that Mount Auburn will give us also a small increase of revenue. The Treasurer estimates that our expenses have increased about $1,300, for the year 1880, over those of the previous year. This would show an improvement in net income of about $3,000 for the past year. We cannot rely upon the accuracy of the statement, as it necessarily is but an approximate one, the Treasurer being obliged to wait to receive the accounts from Mount Auburn before he submits his annual report. So favorable a statement as this could not have been presented, if proper repairs had been made upon our building, which are imperatively demanded.

Our exhibitions are not so important and beautiful as they might be made; and to secure an improvement of them, larger sums than we have lately been able to afford, should be appropriated for prizes to stimulate exhibitors, and to induce them to display their products in our halls.

Moreover, our exhibitions should be made better known to the public than they have been. During the past year they have been excellent, and worthy of greater attention than they have commanded. The community do not understand how beautiful and interesting they are, and it seems to me desirable that measures should be taken through the public prints, by advertisements and otherwise, to call attention to them, and thus not only the public but this Society would be much benefited.

The chief part of the revenue of foreign horticultural societies is derived from entrance fees paid by visitors, and the exhibitions of most of the societies of this country are sustained by the visitors. At Worcester, in our own State, the sums derived from annual exhibitions have been very considerable, far exceeding the receipts of our Society from the same source, and this result has been obtained not only by the personal efforts of committees having the matter in charge, but by judiciously advertising the exhibitions in various ways by which many visitors have been attracted to them. It certainly is strange that though our Society has its home in the largest city of New England, with a building containing all the conveniences which man could desire for the display of horticultural products, and situated in the most eligible locality for access by visitors, and its exhibitors and patrons those who possess the most extensive and beautiful gardens and conservatories in Massachusetts, many of these gentlemen being distinguished throughout the world as proficients in the science and art of horticulture; yet its exhibitions are poorly attended, and its receipts from visitors are less than those derived from the show of many a county society in the country. I call attention to this subject believing that some means should be adopted to bring our exhibitions more into public notice, by which the pleasure and improvement of the people at large would be much increased, and the Society benefited from the increase of admission fees, so as to enable it to enhance the beauty and increase the usefulness of its exhibitions.

As I have before stated our building requires repairs. It needs them both outside and inside. I think it would be desirable to expend from three to five thousand dollars very soon to preserve and judiciously improve our estate. It is most unwise to allow our elegant structure to deteriorate for want of proper care. Unless important repairs are made forthwith, a very great expenditure will soon be wanted to put the estate in a tenantable condition.

We have a debt of $12,000 incurred by spending in past years more than our income. Upon assuming the duties of the office to which you elected me, my attention was particularly directed to the financial situation of the Society, and though, by the rules governing us, it does not belong to your President to attend to the management of the finances of the Society, yet it is expected of him to have a general acquaintance with and supervision of its affairs

to qualify him for the duty imposed upon him by the Constitution and By-Laws, "to report from time to time what measures, in his judgment, are necessary to promote its objects and extend its usefulness." The necessities of the times, and the pressing wants of the Society, as I have been informed, occasioned the debt; but now, in the improved financial condition of the country, in which this Society and its members generally participate, it seems to me we should take measures to discharge this incumbrance as soon as possible, and resolve that in the future the Society shall not expend more than its income. We must insist upon it that in no event shall we allow the Society's fixed investments to be lessened or incumbered under our management. I, therefore, call upon all members of our association, whether they are responsible or not in any manner for the creation of the debt, to unite as friends of the Society in discharging this debt. It must not be fixed permanently upon the Society. We ought not to borrow money to renew indefinitely the obligation. We must not place any mortgage on our estate to provide for its payment. It should be met and paid as early as possible during the present year, and if you will all aid, according to your means, the debt will soon be paid.

I again call your attention to the importance of making arrangements so that the library shall be used as a place of quiet study, for the accommodation of our members. It is degraded by its present use as an office where the business of the superintendent and of the transient tenants of the halls, in their multifarious occupations, is carried on so as to disturb and seriously annoy those who desire to make a legitimate use of the room. It wholly subverts the proper use of the library as a reading-room and for literary labor, and makes it a noisy business office, thus almost entirely setting aside and disregarding the intentions of those who have contributed liberally to provide a quiet resort, well furnished with books, for students in the science and art of horticulture, and a place which members can frequent to inform themselves, through the periodicals of the day, of the progress of the world in those matters in which they are especially interested. It is also the room where we should come together on stated days to listen to, and participate in, the discussions which you have instituted, undisturbed by the interruptions of business.

It seems to me not necessary to wait until additional buildings are obtained before we accomplish the desired object, as by some

inexpensive alterations we can better provide for the tenants of the halls, and allow sufficient accommodation for the business wants of our officers.

In this connection I would inform you that the Executive Committee unanimously recommend to you amendments of the Society's Constitution and By-Laws, so as to allow the duties of treasurer, superintendent, and librarian to be performed by more than one person, instead of its being required, as it is now, that one person shall discharge all those different duties. It will, if you approve of the recommendation, be left to the Executive Committee to select, from time to time, such person or persons as they think best, for the interests of the Society, to fill those offices.

It gives me pleasure to bear witness to the able and faithful manner in which your different committees have discharged, during the past year, the duties respectively committed to them. By reading their reports you will observe that, in many respects, the exhibitions of 1880 have shown marked improvement over those of previous years. The Society has never had, I understand, so large and beautiful displays of fruits and flowers as have been exhibited the past year. Our collection of books has been rendered more valuable by the judicious action of the Library Committee in making additions to it. Your Committee of Arrangements have been diligent in the performance of their duties, and discharged them in such a manner as to give great satisfaction to the members of the Society.

I call your attention to the admirable manner in which your Secretary has edited the History of the Society, and reported its doings. I regret that he has not been able, from lack of time, to cause the publication of the Transactions of the Society beyond the year 1879, but trust that we shall soon see the other parts in print, and that circumstances will never again prevent the publication of the Society's Transactions in the early part of the year after they have taken place.

Ladies and Gentlemen, — It must never be forgotten by us that we owe a duty to those who, by their wisdom, liberality, and labors, founded and established this Society for the public good. Their work was not done for themselves and for us alone, but for all future generations. It devolves upon us, in accepting their legacy, to transmit it to our children not only unimpaired, but improved and strengthened by our work and contributions. While grate-

fully remembering what has been done, it is not for us to rest satisfied with what has been accomplished, but, stimulated by the example of our predecessors, we must do our work as they did theirs, in a generous spirit, for posterity as well as for our own generation, or we shall not be worthy successors of those who have done so much for us. Our Society is yet in its infancy, and I believe there is a great future for it. There are those with us, and I hope there are many, who do not believe that nothing more need to be done, or will be done, by the members of this Society to increase its usefulness and add to its glory. We have inherited much, but we should not allow our inheritance to impair our energy or make us slothful in the performance of our duties. Let us always bear in mind that there is much before us to do. To the development of horticultural knowledge throughout the world this Society should make a liberal contribution. It has done something already, and we can look with great pleasure upon what has been accomplished under its auspices in introducing new varieties of plants and improved fruits, in the embellishment of gardens and grounds throughout the country, and in the dissemination of horticultural information. Yet we must not stop here. We are still but on the threshold in our investigations of the beauties and resources of nature, which will employ eternity to disclose. We have, I trust, but made a beginning of the great work this Society is destined to accomplish. We must not wait for others, or rely upon a few persons to bear the burden attending this work; but we must all do what our hands find to do, to build still higher and on deeper and more solid foundations the institution entrusted to our care, that it may ever be a blessing not only to ourselves and this community, but to all mankind.

On motion of Hon. Marshall P. Wilder, the thanks of the Society were voted to the President for his address, and a copy was requested for publication.

The President presented the following amendments to the Constitution and By-Laws, recommended by the Executive Committee:

Voted, That the thirteenth and sixteenth sections of the Constitution and By-Laws of this Society be amended by striking out in the thirteenth section the words, "He shall also act as Superintendent of the Building, subject to the orders of the Finance Committee, and shall attend to the care and letting of the same, and

the collection of rents, and other income of the Society." And, also, in the same section, strike out the words, "He shall also act as Librarian under the direction of the Library Committee." And strike out in the sixteenth section, after the word "appoint," in the sixth line of the printed copy of the By-Laws, the words, "A Treasurer and a Secretary of the Society," and insert, after the words in the seventh and eighth lines of said copy, "Whenever a vacancy shall occur," the words, "A Treasurer, a Secretary, a Superintendent of the Building, and a Librarian of the Society, and define their respective duties, except where these are determined by the By-Laws."

The proposed amendment was read once and passed to a second reading by a unanimous vote; and, having been read a second time, was laid over until the stated meeting in April.

Hon. Marshall P. Wilder presented a recommendation from the Executive Committee that the Society invite the American Pomological Society to meet in Boston, in September next, and on motion of William C. Strong, the following vote was unanimously passed:

Voted, That the Massachusetts Horticultural Society hereby extends to the American Pomological Society, a most cordial invitation to hold its Eighteenth Session, on September 14th, and succeeding days, with the usual courtesies for their accommodation.

Mr. Wilder, as President of the American Pomological Society, accepted the invitation with hearty thanks, and stated that the invitation would involve no expense to the Massachusetts Horticultural Society.

On motion of John B. Moore, it was *Voted*, That the Executive Committee, in connection with the Finance Committee, be directed to carry out the recommendations in the President's address, concerning alterations in the building.

The Annual Report of the Committee on Vegetables was read by Charles N. Brackett, Chairman, and the Annual Report of the Committee of Arrangements, by John B. Moore. These reports were severally accepted and referred to the Committee on Publication.

William H. Spooner moved to take up the vote offered by him

at the meeting on the 11th of December, 1880, and then laid on the table. The motion was carried, and it was

Voted, That the Prospective Prize of $40 for the best Seedling Flowering, or Foliage Plant (other than Rose, Camellia, Azalea Indica, Tree Pæony, Hardy Rhododendron, or Hardy Azalea), be awarded to Joseph Tailby for his Seedling Carnation, Grace Wilder, as recommended in the Report of the Committee on Plants and Flowers.

The following named persons were proposed for membership in the Society: J. Montgomery Sears, of Boston, and William Power Wilson, of Boston, by the President; John E. Russell, of Leicester, and John H. Moore, of Concord, by John B. Moore; and Edward Baker Wilder, of Dorchester, by Hon. Marshall P. Wilder. The President urged upon the members the importance of zealous efforts in adding to the membership of the Society.

Charles M. Hovey moved the appointment of a Committee of three, to procure a portrait of the President to be added to the series in the hall of the Society. The motion was unanimously passed, the question being put by Vice-President John B. Moore, who appointed, as the Committee, Charles M. Hovey, Robert Manning, and Joseph H. Woodford.

Benjamin G. Smith, Chairman of the Committee on Publication and Discussion, announced that the meetings for discussion the present season, would commence on the next Saturday, with the reading of a paper by William H. Spooner, Chairman of the Committee on Plants and Flowers, on the "Cultivation of the Rose," to be followed by a discussion.

Adjourned to Saturday, January 8.

BUSINESS MEETING.

Saturday, January 8, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, President Hayes in the chair.

The President announced the appointment, by the Executive

Committee, of Edwin W. Buswell as Treasurer, and Robert Manning as Secretary, of the Society.

David Allan, of Belmont, was proposed by Charles M. Hovey, as a member of the Society, and Edwin Faxon, of Boston, by E. H. Hitchings.

Further time was granted to the Treasurer, to make his Report.

Adjourned to Saturday, January 15.

MEETING FOR DISCUSSION.

Immediately after the adjournment of the business meeting, a meeting for discussion was held, at which the following paper by William H. Spooner, Chairman of the Committee on Plants and Flowers, was read by the author:

Some Experience in Hardy Rose Culture.

In looking at a subject so extensive as Rose Culture, from the little spot which limits my own efforts in that direction, I can only offer hints which may be useful to the inexperienced, but can suggest nothing of special value to the professional grower.

It is generally supposed that to attain even a moderate measure of success in the rose garden, all advantages of soil, scientific appliances, etc., are essential, but the amateur will find very satisfactory results even when these conditions are not carried to great perfection. The soil of my garden is not particularly adapted for the growth of roses, being a light loam with a gravelly subsoil, yet from this apparently uncongenial source I succeed in growing a great many very good roses. I am not an advocate of the deep trenching or subsoiling system in the preparation of the ground, considering it entirely unnecessary.

My system of planting was very simple at the outset, the land being already in a good state of cultivation. First, preparing myself with a sufficient heap of well-rotted horse manure, the space assigned for the plants was covered with a portion of the compost, spread broadcast, and then thoroughly ploughed in. I may mention here that I have at other times made use of hen manure, mixed with about one-third soil, and consider it a good fertilizer for the rose. The ground was then laid out in rows three feet apart, and

the same distance between the plants; the holes for their reception were prepared by throwing out the soil to the depth of one spade from each, and then throwing in two or three forkfuls of manure, thoroughly incorporating it with the soil to the depth of the spade, when all was ready for the plants.

My plants are all the so-called dwarfs, worked low upon the Manetti stock, which I prefer to the Prince's or seedling brier, as it seems better adapted to my light soil. I judge the latter stock may be better suited to a stronger or clayey soil; at any rate, all the plants I had worked upon it have died. My plants were imported, and not received until about the 10th of December, when the ground was closed, so that I was obliged to keep them in snug winter quarters, bedding them carefully into a frame, protecting them very closely with leaves, and covering the frame with boards. They came out in splendid condition in the spring, and were planted with hardly an exception to successful growth, which result has led me to prefer the spring for planting in our uncertain climate, and I have continued to make small experiments of the same kind yearly since my first venture. Having cut back the plant to two or three buds, the stock should be planted with the collar about two inches under the surface, and the soil pressed very firmly about it. Through the summer I apply guano to the surface occasionally—a handful or two to each plant, sometimes in a dry state, and sometimes in water. I use frequently, in summer, a top dressing of brewers' spent hops, strewn broadcast, not digging it in; it helps to keep down weeds, and has many advantages.

The rose, in a healthful, growing state, is a great absorber of water, and the free use of the hose morning and evening has been my most reliable assistant in promoting its health and in freeing the plants from insects. Every fluttering leaf of the plants seems to rejoice, as the cool water showers down upon it, and the clean, fresh foliage greatly enhances the beauty of the blossoms which it surrounds. But insects are ready to invade every domain of horticulture, and are especially destructive to the perfection of the Queen of Flowers; some of them may be overcome, but as regards the rose-bug or rose-beetle, I am in despair. The only remedy for this persistent plague that I have found has been the continuous application of the thumb and forefinger, and that with some severity.

It may be urged by some that the budded rose has entailed upon

it the disadvantage of suckers, and endless care to prevent them; but actual experience proves this to be very slight. It is presumed that a lover of the rose is with his pets as often as possible, and these persistent thieves are easily detected and quickly destroyed. I cannot agree with those who claim that the maiden bloom is the best effort with the budded rose, as I am now growing plants on the Manetti stock which have been out eight years, and are producing as fine blooms as ever. The amateur wants results in the shortest time, and therefore must take the budded plant; if sunk deeply enough it soon becomes fixed on its own roots. Few of us can hope to rival the Madame Lacharme and Paul Neron of a Hayes, the Pierre Notting of a Gray, or the Horace Vernet and Charles Lefebvre of a Moore, but I am sure that the Manetti stock will give us an approximation to their high standards.

There is evidently a great difference in the constitution of hardy hybrid roses, as has been proved by success or failure under the varying influences of climate, soil, or stock, and as some results of my individual experience may prove suggestive, I append a list of a few which have been successful under my system of culture.

Abel Carrière.—Moderately vigorous; hardy; beautiful.

Alfred Colomb.—This superb rose is quite hardy and vigorous; its brilliant crimson flowers are unrivalled.

Beauty of Waltham.

Bessie Johnson.

Charles Lefebvre.—A very strong and hardy rose; flower large, and beautifully formed.

Comtesse d' Oxford.—Hardy, vigorous, with fine large flowers.

Coquette des Blanches.—A white rose, and a truly perpetual bloomer until late in the autumn; a remarkably vigorous grower, and has proved hardy with me until last winter, when it was killed to the ground.

Dr. Andry.—Hardy, vigorous, and a free bloomer.

Duke of Edinburgh.—One of the strongest and most hardy.

Dupuy Jamain.

Eliza Boelle.—Moderately vigorous; hardy, with a very delicate white bloom, shading to flesh color.

Emily Laxton.—Vigorous; of a climbing tendency; hardy, and very desirable.

Fisher Holmes.

Jean Goujon.

John Hopper. An old favorite; hardy, and a very fine bloomer.

Jules Margottin.—Of vigorous habit; very hardy, and still one of the best.

Lord Clyde.—A remarkably strong grower, hardy, and a very good rose.

Mabel Morrison.

Marie Beauman.—One of the very best; moderately vigorous, quite hardy, with large and perfect flowers.

Miss Hassard.—Vigorous, hardy; delicate flesh color, very sweet, and a free bloomer.

Mme. Boll.—Perfectly hardy and vigorous; a free bloomer, and early; flower not the most perfect in form or color.

Mme. Gabriel Luizet.—Vigorous; hardy; a free bloomer, and I think may prove one of the best.

Mme. Georges Schwartz.

Mme. Rivers.—A fine rose; moderately vigorous and hardy.

Mme. Scipion Cochet.

Mme. Victor Verdier.

Mme. Vidot.—Moderately vigorous; hardy; flower beautiful, and perfect in form.

Mons. Boncenne.—A plant of good habit, very hardy and vigorous; the best of its class with me.

Paul Neron.—Vigorous and hardy.

Pierre Notting. Very hardy; of good habit, and a strong grower, but, alas! how seldom do we find a fully developed and perfect flower; a bright sun apparently scorches the petals in the bud.

Princess Louise Victoria.

Senateur Vaïsse.

Sir Garnet Wolseley. A thick, bushy plant, rather short-jointed, moderately vigorous and hardy; its large vermilion flowers and profuse bloom are very attractive.

Souvenir de Charles Montault.

Thomas Mills. Very hardy; a well-formed plant, of great vigor of growth; a very prolific bloomer; flowers very large. One of the best with me.

Triomphe de Caen.

Victor Verdier. Always good and reliable.

I will now name a few varieties that have not proved hardy, or have been weak in growth, and less satisfactory in general results in my experience.

Cranston's Crimson Bedder.—This seems hardy enough, but is a very poor grower.

La France.—Almost invariably killed.

Louis Van Houtte.—Almost always killed. I only saved it one year.

Mlle. Bonnaire.—Very beautiful, and free in flower, but a poor grower.

Mlle. Eugénie Verdier.—A weak grower, although a beautiful rose.

Mme. la Baronne de Rothschild.—Usually winter killed nearly to the ground, and is never a vigorous grower.

Mme. Lacharme.—Very tender.

Prince Camille de Rohan.—Is *not* very hardy. I know this is not the general experience, but I have lost all my plants.

Mlle. Marie Rady, *Vicomte Vigier*, *André Dunand* and *Captain Christy* have proved tender.

The Moss Rose.—Turning now to the fairest of the Rose family, we are reminded of the poetic allegory which accounts for its added beauty, by supposing an angel to have found repose beneath its branches, and to have wished to bestow some gift in recompense, but to have been scarcely able to devise any addition to its charms:

> "The angel paused in silent thought:—
> What grace was there the flower had not?
> 'Twas but a moment:—o'er the rose
> A veil of moss the angel throws;
> And, robed in Nature's simplest weed,
> Could there a flower that rose exceed?"

I must confess to a great love for this fascinating class, partly for the reason that my light, well-enriched soil, with its natural subsoil drain of gravel, tends to bring it to full perfection, and partly because the delicate fragrance of the foliage is peculiar and unique. The ground for Moss roses should be prepared in the same way as for the hardy perpetuals, with a larger application of manure; and I also apply a more liberal annual summer dressing during the blooming season. I have always found the Moss rose more difficult to successfully transplant than any other, and it starts very slowly on its own roots.

All my Moss roses are worked upon the Manetti stock except

the Common; these I prefer on their own roots. The varieties that have proved best with me are:—

Baronne de Wassenaër.—Perhaps the strongest grower of all; wood very dark and spiny, blooming in large clusters of buds; not as mossy as some other kinds.

Celine.—Hardy, moderately vigorous, spreading; foliage dark colored, leaves rather small; a profuse bloomer, bud rather soft, and not very double. It would probably force well.

Common.—The best of all; fine double flower.

Crested.—The next best; very double.

Gracilis, or *Prolific.*—This resembles the Common, but has a longer bud.

Laneii.—A vigorous, upright grower, and moderately free bloomer.

Perpetual White.—Moderately vigorous; color pure white; buds small and short stemmed, in rigid clusters of from four to six; foliage pale green, leaves crisped. Not very hardy.

White Bath.—With me the best white.

The so-called Perpetual Mosses seem to me a myth as Moss roses; they may be perpetual, but they possess very little moss, and the only variety that I have been able to save is Mme. Moreau, which is a perpetual free bloomer.

The few suggestions I have endeavored to present to you have been gleaned from personal observation in planting, tending, nourishing, and comparing, with results as here briefly stated.

Discussion.

Hon. Marshall P. Wilder, said that he came in specially to hear the essay by Mr. Spooner, who is a practical cultivator, as his ancestors were. Different soils suit different varieties of roses. He agreed with the essayist in regard to the beauty of the Moss rose, but thought Laneii the best of all. It roots freely, while Moss roses generally have few roots. Mr. Wilder stated that Mr. Thorburn, the New York nurseryman and seedsman, once returned an invoice of Moss roses because they had no roots. Mr. Spooner's soil may have been less favorable to the Laneii than the speaker's. The latter desired lists of the best roses, selected from the thousands on the catalogues, to save cultivating

so many kinds; the lists to be composed of such proved varieties as Baron Prevost, John Hopper, Maréchal Niel, and Bon Seline, which hold on perpetually, and Safrano, which is the very thing wanted by the florists and connoisseurs. We are arriving at selections in other flowers, such as the chrysanthemum. In tomatoes, instead of the twenty kinds in cultivation, we want no more than four of the best. The first effort of the American Pomological Society brought down the list of fruits from thousands, to a selection desirable for every garden.

John G. Barker said that his experience in rose culture had differed somewhat from Mr. Spooner's. Six years ago he made two beds of Hybrid Perpetuals, for which he dug out the soil to the depth of eighteen inches, and replaced with a compost of equal parts of well decomposed sods, horse manure, and cow manure. The varieties were selected from the roses exhibited in 1872 and 1873. There were thirty plants in each bed, on Manetti stocks. The soil was naturally moist, and they were planted so as to root from the grafts. They made a most astonishing growth the first year, and the next spring were pruned severely, and the small wood was thinned out in summer. They made shoots higher than his head, which, when signs of growth appeared in spring, were pegged down to the soil. These two beds were solid masses of flowers; though not of the largest size, there were legions of them. He thought this the most satisfactory result, when, as in the present case, they were for the benefit of the public. Afterwards, he made two more beds in the same way, first making diagrams and marking all the varieties on them, for the instruction of the visitors to Pine Grove Cemetery, Lynn, of which he is superintendent. He has never had a rose-bug on his roses, though they destroyed a pelargonium bed not forty feet away from the rose beds. High culture and vigorous growth may have kept them away. He has never been troubled with the rose-slug. He goes over the bed with a scuffle hoe every two or three days; this keeps the ground moist and the surface does not bake after rain, as it does when raked. He adopted this method of culture because he is obliged to choose the cheapest way. He pegs down the shoots after pruning off twelve or fifteen inches of the end, and never covers them. Madame Plantier is one of the white June roses, but needs a little covering, which is a good investment, for it forms a mass of flowers. He has two bushes of the old-fashioned Red

Moss rose in soil which has not been enriched for eight years, but they form masses of flowers.

Charles M. Hovey, said that for sixteen consecutive years, he took prizes for the best thirty hardy June roses. Many of the old roses of twenty years ago still take the prizes. Bon Seline, Maréchal Niel, Gen. Jacqueminot, and John Hopper, are all good, but have their defects. The best part of Mr. Spooner's paper is that in which he points out what have not succeeded with him. The speaker was the first to import the Madame Plantier, and had found it perfectly hardy, though it may be well to cover it in very exposed situations. The two things which the rose requires are the pump and the manure heap. Mr. Hovey thought the best English cultivators preferred roses on their own roots. All things, with rare exceptions, grow best on their own bottoms; grapes do best on their own roots. We must resort to stocks to rapidly increase the plants of varieties. There are some bad results from grafted roses — among others, suckers from the stock, which gain the ascendancy over the graft. He has a row of Hybrid Perpetuals, six or seven feet high, on their own roots. In selecting roses, we should choose kinds which will stand our hot suns. Mr. Hovey spoke in favor of the class of roses known in England as "decorative roses," — hardy, vigorous, and abundant flowering kinds; just what everybody wants, and not simply roses for exhibition.

William C. Strong had enjoyed Mr. Spooner's essay. He was surprised to hear such a young and progressive member of the Society as Mr. Hovey, opposing the introduction of new varieties, particularly since the wonderful progress of the past few years. In the English prize lists, there are few varieties of more than ten or twelve years' standing. It is a laborious process to weed out the inferior varieties. He dissented from the views of those who thought it needful to keep fertilizers to rot down; much ammonia is lost during this process. The rose is a gross feeder and will take fresh manure; moreover, it wants a heavy soil, and old compost is light and makes the soil light. In making a rose border in his house, he used green cow manure; the mixture laid two or three days and was turned over, and Manetti stocks were planted in the border in March and budded in June, and ripened eight or ten feet of wood. He had seen young roots of the Manetti stock strike into fresh cow manure. He would prefer fresh manure to

old, but if he had had time when he made his border, would perhaps have turned it over a little more. He dissented from Mr. Hovey's views in regard to stocks; weak growers are vastly benefited by grafting. Tea roses are benefited by being grafted on vigorous stocks. Such stocks impart a vigor to weak growing kinds, which they can never get on their own roots, as the *Magnolia acuminata* imparts vigor to the smaller growing kinds grafted on it.

Mr. Wilder said that no one is more anxious than he for the production of new varieties. He carries all the time two camel's hair pencils in his pocket, to be always ready to transfer the pollen from one plant to another. He has repeatedly exhorted to sow perpetually to obtain new varieties, and if he could go back fifty or sixty years, he would practise this more than he ever has done. The world moves, and he wants to move with it; and no one admires the enterprise of the President and others, in introducing new roses and plants more than he; but he desires a consolidated list of such standard varieties as he had mentioned.

Rev. A. B. Muzzey said that he could not compete with practical cultivators, but he thought that the comparative value of old compost and fresh manure ought to be ascertained and settled in our discussions. Farmers used to let manure be exposed to the air, at an immense waste of ammonia, but they do otherwise now. He suggested experimenting with fresh manure, but would cover it with soil to save its fertilizing qualities. He remembered the two old roses, white and red, and questioned whether we had improved on them in beauty and fragrance. We should not throw away good things because they are old.

Mr. Hovey said that the best twelve Tea roses would include the Maréchal Niel and Niphetos. No white Tea rose comes up to Niphetos. Souvenir de Malmaison has never been excelled. It is the same with some of the old Hybrid Perpetuals. The old Moss roses are the best. Princess Adelaide is a good grower and a wonderful bloomer. He would adhere to the good old varieties, and while he would test all the new ones, he would not rely on them as garden varieties until they have been proved. He visited M. Laffay in 1844, and purchased the first Princess Adelaide Moss that came to America, and the first La Reines.

John B. Moore said that he could find no fault with the directions given in Mr. Spooner's paper. People find in books, direc-

tions to make rose borders four feet deep, of half manure, like Mr. Gray's, but the speaker thought we could do better by following Mr. Spooner's method. When he (Mr. Moore) began cultivating roses, it was in a light soil which absorbed too much water. He objected to clay to make it more retentive, and preferred the strata of very fine consolidated quicksand found in sand pits. They are so hard as to require a pick-axe to break them up, but if spread on the ground they dry and crumble, and when worked into light soils make them permanently more retentive. He agreed with Mr. Strong that roses are gross feeders; they cannot have too much manure. In answer to Mr. Hovey, Mr. Moore said that it was not necessary to have the same things over and over again. Mr. Hovey thinks that roses are best on their own roots, but a large proportion will grow stronger on Manetti stocks. The suckers are so unlike the grafts that any but the most stupid person can distinguish them, and fifteen minutes will suffice to remove them from a large bed. He plants his roses in rows four feet apart; walking between the rows compacts the earth so that it will not absorb rain, and instead of a rake or scuffle he uses a French cultivator, drawn by a horse, to stir it. He earths up the plants in autumn. Baroness Rothschild kills down to the earth line. Madame Lacharme is worthless except to collect rose-bugs; they must be shaded; the bush will grow, but fails to give good flowers. In answer to an inquiry how new roses differ from the old, Mr. Moore said that many are more beautiful, and while few of the old roses bloom later than June, with the new ones we can have flowers from June to October, and a few roses in August, when they are scarce, are more desirable than many in June. He has three hundred varieties, but does not propagate above seventy-five. One will mildew; another may be beautiful but fail to grow; another may do both. Coarse strawy manure will lighten the soil more than old compost, and therefore should not be used. It is also objectionable as a covering, for if the wood is not well ripened it is apt to kill it, but after heaping up the earth ten inches high around the bushes in autumn, he covers it with manure, to prevent it from freezing and thawing, and throws coarse meadow hay between the rows. Cold weather will not hurt them. There are two sides to the question of ammonia escaping from the manure heap; it is not always ammonia that we smell there. He did not approve of rotting down manure generally, but did not believe in any great loss in doing it.

Mr. Wilder said that our fathers did not appreciate the value of manure, as was shown by their laying it by the roadside to run to waste in the gutter.

President Hayes said that he had not so much experience in rose culture as many others, but he was satisfied that there is opportunity for progress. There is a future before us for the Society—for the rose, and for the rhododendron. Mr. Wilder and Mr. Hovey, in spite of loving old things, know there is a future of progress before us. We have all looked with great interest on the new varieties of roses exhibited, and he had ordered all the new kinds, because he desired to have the future of the rose fully illustrated. Many of the very new varieties have succeeded with him; few have been lost in comparison with the whole. Madame Lacharme stood at the head of those with which he took the silver cup for the best three varieties, and though he had to pick rose-bugs from the plants, he produced what was said to be the most beautiful rose exhibited in the hall. He mentioned his success with this variety to show what can be done with a delicate kind. In one place the soil produces perfection in one kind and refuses to give another, and this wonderful adaptation exists so that every one can bring forth something beautiful. The rose is a gross feeder, and will bear fresh manure, and perhaps cow manure is best of all.

Joseph H. Woodford said that though he had had but little experience he had carefully observed the methods of others. He thought Mr. Moore's method of protection best. The soil should be hauled away from the plants, and the manure in the trenches should be forked in in the spring. Most of the tender varieties may be preserved in this way. The speaker had seen a similar method used by John C. Chaffin, one of the best rose growers. He sifted long straw among the bushes, so as to afford partial shade in March and April, having found that the hot sun at that time spoiled the buds on the sunny side. Mr. Woodford read the following list of thirty roses, noted by him as the best in the exhibition of 1880:

Alfred Colomb,
Caroline de Sansal,
Charles Lefebvre,
Comtesse d' Oxford,
Dr. de Chalus,
Dr. Sewell,
Duc de Montpensier,
Duke of Connaught,
Dupuy Jamain,
Étienne Dupuy,
Exposition de Brie,
Ferdinand de Lesseps,

Fisher Holmes,	Mme. Lacharme,
Gen. Washington,	Mme. Prosper Laugier,
Horace Vernet,	Mons. Boncenne,
Jean Soupert,	Mons. E. Y. Teas,
La Rosière,	Mrs. Baker,
Mabel Morrison,	Pierre Notting,
Magna Charta,	Sir Garnet Wolseley,
Mlle. Marie Rady,	Thomas Mills,
Mme. la Baronne de Rothschild,	Vicomte Vigier.

The above list comprises both old and new kinds, and one American variety. Any one can grow the good old varieties, but not one in a hundred can grow Caroline de Sansal or Madame Lacharme. We should grow both old and new, and select the best. Roses should not be pruned in autumn, for they are then more liable to be killed down, but the wood should be left on.

Benjamin G. Smith, Chairman of the Committee on Publication and Discussion, announced that the Schedules of Prizes for the year were ready, and also that the discussion of the subject of today would be continued on the next Saturday, after the adjournment of the Business Meeting. On behalf of the Committee he desired that members would hand in lists of what they deemed the best twelve, twenty-four, thirty-six, and forty-eight roses.

BUSINESS MEETING.

Saturday, January 15, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, President Hayes in the chair.

The following named persons were appointed a committee on the meeting of the American Pomological Society in Boston in September next, to act in connection with the Committee of Arrangements of the Horticultural Society: President Hayes, Hon. Marshall P. Wilder, William C. Strong, E. W. Buswell, and Robert Manning.

E. W. Buswell, Treasurer, read his Annual Report, including

the Report of the Finance Committee, which was accepted and referred to the Committee on Publication.

The following named persons, having been recommended by the Executive Committee, were on ballot duly elected members of the Society:

J. Montgomery Sears, of Boston.
William Power Wilson, of Boston.
John E. Russell, of Leicester.
David Allan, of Belmont.
John H. Moore, of Concord.
Edward Baker Wilder, of Dorchester.
Edwin Faxon, of Jamaica Plain.

Adjourned to Saturday, January 22.

MEETING FOR DISCUSSION.

The subject assigned was the "Cultivation of the Rose," being a continuation of that of last week.

Charles M. Hovey quoted a statement by the editor of the Gardener's Monthly, in support of his objections to the Manetti stock for roses, and said that Jean Sisley, one of the largest French rose growers' uses only seedling briers and La Grifferaie as stocks. But for general purposes the speaker preferred them on their own roots. He presented the list of roses referred to by him last week as taking prizes in England, viz., Tea roses—Maréchal Niel, Solfaterre, Souvenir d' un Ami, Souvenir de Malmaison, and Niphetos. Hybrid Perpetuals—Pierre Notting, John Hopper, Paul Neron, Baron Prevost, La Reine, Gen. Jacqueminot, Beauty of Waltham, Charles Lefebvre, Marie Beauman, and Eugène Verdier.

John B. Moore said that he knows roses do better on his light soil, worked on Manetti stocks, than on briers or on their own roots. Any one who loves a rose can easily distinguish the suckers from the grafts, and remove them. Mr. Hovey left the impression on the minds of those present last week that he considered the old roses superior to the new; but the speaker thought there had been a vast improvement, and that if we made a list today, in three years we should be obliged to strike off many kinds. Mr. Hovey classed as new roses any introduced since 1860, but of those

on his list of old kinds, the John Hopper was sent out in 1862, Pierre Notting in 1863, and Paul Neron in 1869. Good as the John Hopper is, it is more than equalled by many new ones. Mr. Barker's object in planting roses on Manetti stocks, with a view to their afterwards rooting from the graft, is to give them a start; but the speaker doubted whether they root much from the graft. He has plants on Manetti stocks, of eight or ten years' standing, and though his soil is not naturally adapted to roses, they make shoots of eight or ten feet in length. His remark, last week, that six roses in August are worth ten bushels in June had been criticised, but he did not intend it to be taken literally, but only to say that, while in June they are very abundant, in July, August, and September they are scarce and valuable. Some of the so-called Hybrid Perpetuals are perpetual, and some are not. Mme. Charles Wood will bloom itself to death. As the new growth comes out, it gives a new crop of roses. The Hybrid Perpetuals give as many roses in June as those which bloom only in June, and all the later blooms are so much advantage over the June roses.

In answer to a question, Mr. Moore said that the clay-like strata referred to by him last week as found in sand pits, are probably dried quicksand, though some farmers call it marl. Clay, when spread on land remains in lumps, but this falls to pieces. One of the first necessities of the rose is moisture; and the finer the particles of soil, the more retentive it is. His soil is naturally so light that all the water from an inch pipe would be absorbed before running a rod, but after being dressed with the substance which he described, the same quantity of water would stand in puddles or run ten rods. After getting a good soil and a supply of water, the next thing is plenty of manure, for the rose is a gross feeder. He could not afford such a border as Mr. Gray's, four feet deep and half manure, and did not think it necessary, and what the plants cannot take up is lost.

Mr. Hovey said that the subject under discussion was never tiresome to him. Those who grow roses for exhibition must proceed differently from those who grow them for their general effect. We do not want a few scattering plants of rhododendrons or pæonies—we want masses of them, and we want a feast of roses, even if every bloom is not up to the standard of perfection. Two or three plants of annual roses in his grounds, full of flowers, attracted more attention than any others. These are the kinds

for those who wish to cut bouquets of roses. With the progress of improvement we shall get better roses, and many of the old ones will be discarded. Mr. Hovey said that instead of opposing the introduction of new things he had been one of the few to purchase every novelty of any merit, and had very dearly bought many worthless things. In planting two thousand pear trees he included among them only six Bartletts. La Reine is not excelled by any other rose of its color. Niphetos is in all the stands of twelve Tea roses. With one shoot of ten buds of a new rose we can make ten plants by budding, but the stocks will sucker and rob the grafts, and when we can get them on their own roots we should endeavor to do so. In Europe standard roses, grafted high, have gone out of fashion.

Mr. Moore said that Messrs. Cranston, Turner, and Paul, three of the largest English rose growers, prefer plants on the Manetti stock for all purposes. The Hybrid Perpetuals make as great a show in the garden in June as any, and we get the later flowers in addition.

Mr. Hovey said that M. Sisley does not use the Manetti stock. The speaker thought that such roses as the immense Paul Nerons, exhibited by the President, were rarely produced without heading down the plants so early that the first crop of flowers was sacrificed. He knew a gentleman at Newport, who has a large plot of Gen. Jacqueminot, which he thus heads down for the sake of getting fine late flowers.

William Gray, Jr., being called on by the President as the "champion rose grower," said that he understood the objectof the meeting to be to get lists of the best roses, but this was impossible at so short notice. We must grow many kinds for many years before we can decide on the best. In 1874 he thought Mlle. Marie Rady the best rose of the year, but he has not had one in a prize stand since. Pierre Notting was fine, but he has not had one in his prize boxes for years. The only object in testing the new roses sent out from year to year is to ascertain those worthy of cultivation here, which are but a small proportion of the whole. Those of 1877 have not been tried long enough, but are more promising than those of several previous years. If we make lists of roses which can be relied on we must include many of twenty years' standing. Nine out of ten of the new French roses are scarcely heard of after a few years. He would have his roses on Manetti stocks, to give

them a start, and plant the stocks two inches under ground, when they would root from the graft.

Mr. Hovey said that Mr. Gray had presented actual facts which confirmed his views. We want kinds, both of fruits and flowers, whose characters are fixed and known. If any variety gives us roses only once in six or eight years, it is of little value. He agreed with Mr. Gray, that roses get started sooner on Manetti stocks.

Hon. Marshall P. Wilder commended the spirit in which the discussion had been carried on today. He agreed exactly with what Mr. Hovey and Mr. Gray had said. The Manetti stock is a wretched thief, owing to its profuse suckering. He desired to correct the impression which some appeared to have received, that he is not a progressive man. He wanted to put his hand on every new thing he saw mentioned in the newspapers, and obey the maxim to prove all things and hold fast that which is good. Few rose growers have Mr. Moore's peculiar soil, but he admits that manure is the great thing. The speaker expressed surprise that so few new roses had been raised in this country, where, under our bright sun, everything perfects its seed with ease; but we shall do it in the future. Ellwanger & Barry have crossed Hybrid Perpetuals with Tea roses, and he was glad to hear that Mr. Hovey had done the same. He exhorted all to go on and raise new roses, and then their names would go down to posterity fragrant with the results of their labors.

Mr. Hovey said that more had been done in this country in the way of raising new roses than Mr. Wilder's remarks would imply. He had lately been over the history of rose culture in this country for the last forty years, and had prepared an article on the subject for "The (London) Garden," beginning with a variety raised by Mrs. Herbemont, from the Musk Cluster, which has been one of the parents of all the improved Prairie roses. The latter were originated by Samuel Feast, of Baltimore, and Joshua Pierce, at a time which Mr. Wilder would recollect, when the Boursault was the only climbing rose. Joshua Pierce, of Washington, raised fifteen varieties. The Isabella Sprunt is a sport of Safrano, discovered by the Rev. James Sprunt, of Kenansville, N. C., some years previous to 1865. Mr. Pentland, of Baltimore, raised the George Peabody, a Bourbon rose. Prof. Charles G. Page, of Washington, raised the Cinderella, and others. William Boll, of

New York, raised hundreds, if not thousands of kinds, most of which he sent to France. Among his seedlings were the Washington and Madame Boll. In 1877, came the American Banner, a sport from the Bon Silene. Mr. Hovey said he had thought lately of attempting to raise seedling roses, but the French are so far in advance of us, that he had done little for the last twenty or thirty years.

President Hayes remarked that the veteran horticulturist, Mr. Wilder, was himself a perpetual blooming rose.

F. L. Harris said that they do not grow a great many roses at Wellesley. The soil there is similar to Mr. Moore's, but they have not the fertilizers for rose growing. The speaker questioned whether Mr. Gray, and other rose growers, had not committed an error in forcing such luxuriant growth on their plants. He would concentrate the growth in the production of hard wood; and, with this view, he used when they started away from the bud, to rub off the strong shoots. This late, excessively vigorous growth does not ripen. Last year was the worst for roses that he ever knew, which was owing to the failure to ripen the wood the previous autumn. His experience led him to advise thinning out the wood.

William H. Spooner said that, a year and a half ago, President Gray exhibited very fine specimens of the Pierre Notting rose, and the only difficulty with this variety is that it is apt to burn.

Mr. Hovey thought it would have been well to speak of this discussion as of "roses for exhibition purposes." As long as we seek to grow roses for exhibition as big as a plate, we shall get only two or three from a strong shoot. We want plenty of roses, and the secret is in well ripened wood. These excessively strong shoots come "blind," and should be taken away when young. It is hard to divert the current of sap after it has got into one of them.

Mr. Wilder said that we want to preserve for all time, those roses which have proved their title to a permanent place, such as the old Yellow Tea, which has been known for nearly two hundred years, Bon Silene, Safrano, Dr. Andry, Baron Prevost, Maréchal Niel, and similar varieties, the last named of which, he said, would endure for generations. The Gen. Jacqueminot is not a rose of high character when opened, but for certain purposes it has a high value. A hundred thousand flowers of this variety are sold in a year. This rose has taken its place.

The President gave notice that on the next Saturday, John E. Russell, Secretary of the State Board of Agriculture, would speak on "Tropical Fruits and Flowers," and expressed a desire that the community might be better informed of what the Society is doing to disseminate horticultural information by means of these discussions, believing that if the interest of the meetings were understood the room would be crowded.

BUSINESS MEETING.

SATURDAY, January 22, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, PRESIDENT HAYES in the chair.

The President announced the list of Special Prizes for Essays, offered by the Committee on Publication and Discussion for the current year, with the approval of the Executive Committee.

Adjourned to Saturday, January 29.

MEETING FOR DISCUSSION.

Agreeably to the announcement on the previous Saturday, John E. Russell, Secretary of the State Board of Agriculture, spoke on Tropical Fruits and Flowers. A severe snow storm prevented as large an attendance as usual, and Mr. Russell remarked that while he would have been pleased to see the room filled, he was surprised that so many persons were present. He feared that he should be unable to dispel the cold and gloom of the storm by stories of tropical warmth. "Who can hold a fire in his hand by thinking of the frosty Caucasus?"

Some time ago he spent several years on the isthmus which has no special name, extending seven hundred miles from Yucatan to Darien. This differs from any other part of the tropics. We speak of Southern Georgia and Florida as sub-tropical, and of the leeward and windward islands of the West Indies as thoroughly tropical, but all these are exposed to cold blasts from the north, which carry such a chill that in Cuba, where there was no fire except in the kitchen, and no means of keeping warm, he went to

bed to escape the effects of a "norther." During the present winter, orange trees have cracked with the frost in Florida, and he had noticed the same thing in Louisiana—a damage, however, which is easily repaired. But Central America, south of Cape San Antonio, is beyond danger of cold blasts from the north. The waters of the Carribbean Sea are never chilled, and the climate of Central America does not vary more than five or six degrees; the lowest the speaker had noticed was 75°, and the highest in the shade, 82°. Here, we consider such a temperature agreeable and equable, and the speaker, when sweating on the hills of Worcester county, under a higher temperature, had longed for the tropical sun of Central America to cool off in. There, there is never a blast that can destroy vegetation.

Though the isthmus is only one hundred and seventy-five miles wide, it possesses a great diversity of climate. On the Atlantic coast it rains every day, while fifteen miles inland, the rainy season begins in April and ends in November. The rain does not fall incessantly, but so regularly every day that the hour can almost be fixed, and arrangements can be made for picnics or horticultural exhibitions without fear of interruption from the weather. These table lands are the inhabited lands of Central America. The speaker was much interested in the remains of ancient races found in these countries—cities, palaces, and hieroglyphics which could have been made only by a highly civilized people. In the depths of the forest the explorer meets the images of forgotten gods, and almost expects their worshippers to reappear.

The temperature of this region is about that of a conservatory here; and the luxuriance of the tropical vegetation language utterly fails to describe. A single plant will present the appearance of an enormous lilac or rhododendron, with gay bulbous and other flowers beneath, and vines over all, and orchids interspersed. The climate and soil produce indigenous plants of the greatest value to mankind, among which are maize and the castor-oil plant, which grow in the greatest profusion.

Mr. Russell next gave a description of particular plants, beginning with the pineapple. Few people are aware of the manner of growth of this so-called fruit, which is not a fruit in the common acceptation of the term, and botanically is described as a multiple or collective fruit, the constituent flowers having become sterile

and seedless, and all their parts, along with the bracts and the axis of the stem, blending into a fleshy and juicy mass. The pineapples sold here, which are necessarily plucked before they are ripe, will not compare with those ripened and eaten in the tropics. They can be grown of equally good quality in hothouses here, and the speaker had seen in Covent Garden Market, London, as fine pineapples as ever were grown in the tropics—large, fleshy, thin-skinned and juicy. In the tropics every one can raise them, and they are exceedingly useful fruits. They may be said to be drunk rather than eaten. They are chopped in small pieces, and sugar, oranges, and lemons added, and some add cane rum or French brandy. As there is no ice there, the mixture is cooled by swathing the jar in which it is placed in wet woollen cloths and hanging it in a draft. The spirit extracts the juice of the fruit, and when it is sufficiently cooled, champagne is added, and then is the time to drink it.

The most prominent feature of tropical vegetation is the palm-tree. No trees are more valuable; none are more beautiful, romantic, and dreamy. The comparatively small plants seen in conservatories here can give but little idea of their beauty and grandeur. The cocoa palm is at once the most beautiful and valuable of all. When the seed is placed in the ground it springs up in the form of a long narrow leaf, the type of the monocotyledonous plants, and ultimately rises to a great height; the speaker had seen them a hundred and twenty-five feet or more in height. They have no branches, but blossom forever. A single tree will yield fifteen or twenty quarts of juice, from which palm wine is made. Besides the use of the fruit for food and other purposes, the leaves are used for thatching roofs, and the outer shells of the nuts afford fibre for cordage. Altogether, it is the most glorious and valuable production of the tropics.

The cocoanut palm is not indigenous in Central America. The most valuable indigenous production is the cacao tree, from the fruit of which chocolate is prepared. The description given by the Spanish discoverers, of the drinks used by the natives, indicate that this was early known to them. The cacao tree grows about as large as a moderate sized plum tree, and is exceedingly beautiful. They are raised in nurseries, and afterwards planted in orchards, and by the side of each a banana is set to shade the young cacao tree, until it is five or six feet high. Most tropical

plants when growing wild, must spring up in the shade, and, consequently, when raised by art, they must have shade afforded them artificially. At intervals in the orchards is planted a tree called "madre de cacao," (mother of cocoa), a species of *Erythrina*, or coral tree. It sheds its leaves towards the end of the dry season, and during the wet season flames out into crimson flowers, resembling those of the gladiolus, and in such numbers as to completely cover the tree. It thus affords abundant shade during the whole year; and to give this shade to the cacao trees is the object in planting it. On the plantation of the Lacayo family, "Las Malaccas," the "mother trees" are old, and more than seventy feet high, and in May, the first rainy month, are all in gorgeous blossom. When these trees are seen from an elevated position, mixed with the green of the banana, a cacao orchard affords a sight, not merely of beauty, but of wealth. The flowers of the cacao tree itself are borne in bunches, and are of a delicate pinkish white. The trees are very infertile, producing only from twenty-five to thirty ounces of seed in a year. The seeds are borne in a pod shaped very much like a cucumber, and are embedded in a pulpy substance which is very pleasant to eat, and this is known to the monkeys, which give the proprietor of an orchard a great deal of trouble to protect his trees from them. No one here has ever tasted pure chocolate. No substance in the world bears so much extension; a very small quantity will impregnate with its flavor a great deal of arrowroot, or similar harmless substances; or fats, such as oleomargarine. The Nicaragua cacao is the best in the world. The French chocolate manufacturing firm of "Menier," acquired a large tract of land in that country for the purpose of producing it. The native method of preparing the cocoa, is by putting it in gourds six or seven inches deep, with some fine corn meal, and stirring it with a stick, when it rises above the mouth of the gourd in a foam stiffer than that of strong ale. It is almost always drunk cold. The word "chocolate," is derived from two native words, *choco* and *latl*, the former of which resembles the noise made by stirring the chocolate in the gourd—a very pleasant sound to hear when riding up to a house on a hot day—and the latter signifies "drink."

Coffee was introduced very early in the time of the Spanish occupation. It is cultivated in orchards, like the cacao, and the blossoms, which are always on the tree, have an indescribably

delicious fragrance, so that a walk in a coffee plantation in a moonlight evening, is most delightful. It requires seven years from the planting of the orchard to get a crop. The seed is enclosed in a pulp like that of a cherry. Formerly this pulp was separated from the seed by hand after drying, but machines have been invented for doing the work, which have much reduced the price of coffee. Each berry has two seeds, which, as is well known, are flattened on the sides where they come together, like half a cherry stone. The so-called "male berry," is produced when one of the two embryos is abortive, and is raised on comparatively arid soils, at higher levels.

The cactus is always present in Central America — sometimes inconveniently so. It forms a positive fence, fulfilling the requirements of the western man who wanted a fence, "horse high, bull strong, and pig tight." No animal ever bites a cactus; sometimes they bloom magnificently, and some of the species bloom at night. A species of upright, columnar growth, is used to make corrals for cattle, and in an incredibly short time the stems crowd together, forming a solid wall a foot or two in thickness. If it is too high, the tops are cut off and then the plants bloom all over with gorgeous scarlet flowers.

In the great forests, under the shade of the trees, is the most wonderful display of air plants. They grow in every place where they can possibly fasten their roots on the trees. The speaker saw in a conservatory a short time previous, a plant valued at hundreds of dollars, which the owner told him had been in bloom for seven months; but, in that climate without a season, they grow with a vigor and luxuriance which cannot be equalled in conservatories. The vigor of the cactus is such that you can set bounds to the forest with it, and along the pathway between cactus hedges grow begonias and abutilons in the greatest variety and profusion. The portulaca, jasmine, and tuberose are common weeds. The fragrance is indescribably delicious. The vanilla of commerce is an orchid which is cultivated, and likes a cooler climate, but there are other species of that genus which grow wild, and when their seeds ripen they fall and decay, and add their fragrance to that of the flowers. But there is one tree whose fragrance overpowers that of the tuberose and jasmine; it is known as the "bedbug tree," and has an odor like that of ten thousand tavern bedsteads. Fuchsias hang from the trees in great strings, and the speaker in passing under them had cut down thousands with his riding whip.

But the most striking scene is when the convolvulus gets its opportunity. Some enormous mahogany, or other tree, becomes a prey to gigantic vines, which climb up and strangle it, and the tree dies but cannot fall, and becomes covered with great broad-leaved plants which root in its substance. But at length a tropic gale takes it over, and the ruins form a vast mound, covering perhaps an acre, among which birds drop convolvulus and other seeds, and if you walk out early in the morning you find it all alive and ablaze with blossoms, but in an hour the gorgeous show has faded.

Mr. Russell's lecture was warmly applauded at the close, and the President said that all had listened with the greatest interest to his description of tropical vegetation, which had carried us in imagination to those gorgeous scenes. He wished the audience had been larger, but said that all present would feel rewarded for braving the storm.

O. B. Hadwen moved a vote of thanks to Mr. Russell, for his able and interesting address, which was unanimously carried by a rising vote.

Benjamin G. Smith, Chairman of the Committee on Discussion, announced for the next Saturday, a discussion on the "Fruits best adapted for Market Purposes," to be opened by E. W. Wood, Chairman of the Fruit Committee.

BUSINESS MEETING.

SATURDAY, January 29, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair. There being no business before the meeting, it

Adjourned to Saturday, February 5.

MEETING FOR DISCUSSION.

The subject assigned for today, was the "Fruits best adapted for Market Purposes." It was opened by E. W. Wood, Chairman of the Fruit Committee, who said it was unfortunate that the fruits of our cold climate should follow the glowing description given of tropical fruits and flowers last week. In assigning the subject of today, the Committee had in view its practical bearings, and no subject is more practical than this. A few years ago, the fruit grower here was sure of a market without competition, but now things have so changed that the cultivator must change his methods. The business of growing and marketing fruits requires as much brains as the business of a manufacturer or a merchant.

In considering the question what can be grown profitably, the advantages of location must be taken into account, not merely with respect to the character of the soil, but to the demand and supply, the nearness to market, and the facilities for transportation.

The apple is the leading market fruit, and though many farmers felt almost disgusted at the abundance of the last crop, the speaker believed that an outlet would be found for the superabundance by exportation to foreign countries. Two years ago, as Chairman of a Committee on Apple Culture and Exportation, he reported that exportation seemed to solve the problem of the disposal of our surplus apples, and the experience of the last year had confirmed this view. Mr. Wood here referred to the statement in the address before the American Pomological Society by President Wilder in 1877, that the foreign market for American fruits is now as well established as that for our wheat. Since the month of October last, there have been shipped to foreign ports, 396,000 barrels of apples, though few farmers will believe it.

Mr. Wood read the following paragraph from a late number of the Boston Herald: "There are plenty of apples in the market, and shipments are made every week for Liverpool or Glasgow. One of the latest circulars from Liverpool speaks of the apple as 'by far the most important article of green fruit this season.' The receipts at Liverpool in four months were 584,476, or more than half a million, barrels — nearly double the amount of any former exportation. The fact of the English crop being a very small one has, of course, materially assisted the consumption, and it is an

undoubted fact that this season American apples have been used in several districts of England that have never before taken them. The satisfaction they have universally given will lead to a very large demand in future years, no matter what the English crop may be.'" He thought this most conclusive evidence that the prediction of the Committee had been verified. Farmers planting orchards should carefully consider the best varieties for exportation. The Newtown Pippin is the best known American apple in England, but it does not succeed in New England, and in the last six years other kinds have become known in England. The kinds which the speaker recommended most highly for exportation, were the Gravenstein, Hubbardston Nonsuch, Rhode Island Greening, Baldwin, and Roxbury Russet, and these five kinds are also the best for our own market. Mr. Wood referred to a statement made by him in a discussion two years ago* in regard to a gentleman who shipped to England 750 barrels of Baldwins and Hubbardstons, which returned a net price, after deducting freight, of $1.50 a barrel, the Hubbardstons bringing most, and who intended to graft a hundred more trees of the latter variety. This last year the same gentleman exported 2000 barrels, of which the first shipment, during the second week in September, brought $2.50 net, and the second shipment, $2.40. The second quality brought $1.25. Mr. Wood asked: What can be grown more profitably than apples at these prices?

The apple must be a farm crop. Those whose land is taxed for its prospective value cannot afford to grow apples. Large cities must depend on farms for their supply. The apple is the easiest of all fruits to grow. Most apples are grown in mowing fields, but the best can only be grown in grass under peculiarly favorable circumstances — by roadsides for instance. The roots of the grass intercept any top-dressing that may be applied. An orchard does not require the best land; rough and springy hillsides make the best sites. An orchard on a southerly hillside gets more air, light, and sun than one on level ground. The trees should be planted when four years from the bud, and the ground should be cultivated with root crops for six or eight years, and should afterwards receive frequent light dressings of manure, and should be kept light. The trees recuperate in alternate years. The best fruit in an orchard is found on the outside rows.

---

* Transactions for 1879, Part I, page 67.

The pear is next in importance to the apple. It is impossible to add anything new in regard to the best varieties, but new cultivators appear every year who ask what varieties are most desirable. To such the Society furnishes much valuable information by its exhibitions, and it can do no more important work. Novices should look over the published TRANSACTIONS, and see what varieties are most highly recommended. Many varieties growing under particular circumstances become favorites with amateurs, but the list of varieties desirable for market may be reduced to a very small number. From his own experience in growing pears, and from observation of the exhibitions of the Society for fourteen years, the speaker recommended the Clapp's Favorite, Bartlett, Sheldon, Beurre Bosc, Beurre Clairgeau, Duchesse d'Angouleme, and Beurre d'Anjou. The Clapp's Favorite is the earliest kind which can be considered a market variety, for though there are earlier kinds they are too small for market. Within the last five years it has suffered from blight. The Bartlett is too well known to require anything said of it. It does not suffer from blight. The Sheldon is comparatively new, of excellent quality, a strong, vigorous grower, and, though formerly subject to cracking, has lately been free from it. The Beurre Bosc is growing in favor for market. It is a free grower, and bears large, fine, handsome fruit. The Beurre Clairgeau meets many objections. No one would think of putting it on a list for amateurs, but it is a strong grower, and one of the largest and handsomest of all pears, and meets a specific market among the first-class hotels and restaurants, bringing there as high a price as the Beurre d'Anjou, but the hotel keepers prefer it to that variety, because it lasts longer on the tables. It is largely planted by the Revere growers. The Duchesse d'Angouleme, Mr. Wood said, he would discard sooner than any other on the list. The best specimens are from trees on the quince stock, and it requires a moist, strong soil, such as is suited to the quince. It must have higher cultivation, and more food than any of the others named. Of the Beurre d'Anjou he said it was unnecessary to speak in the presence of Mr. Wilder, who introduced it into this country.

If greater variety is desired, the Beurre Hardy, Seckel, Doyenne du Comice, Dana's Hovey, and Vicar of Winkfield may be added. Beurre Hardy is a good grower, and the fruit is fair and handsome, and of good quality. The Seckel is the standard of quality. To

get good sized specimens the fruit must be thinned thoroughly; and if a man has twenty Seckel trees in full bearing, he will have twenty days' work thinning them. The Doyenne du Comice is not excelled for size, beauty, or quality; the only question is in regard to its productiveness. Some growers have found it one of the most productive varieties. It is grown more largely at Worcester than here, and the speaker had never seen trees more handsomely loaded than some of this variety there. Like the Bartlett it forms its flower buds at the extremity of the shoots. To Dana's Hovey there is the same objection as to the Seckel. The fruit grows in clusters, but when thinned they become, in the words of Charles Downing, "Winter Seckels." The Vicar of Winkfield sometimes brings three dollars per bushel, but not often. The fruit needs thinning, but this does not take so long as with smaller varieties. It is a vigorous grower, and makes an excellent stock for grafting other varieties on. The Beurre Clairgeau was mentioned particularly, as doing well when thus double-worked. One large grower lately set out five hundred trees of the Vicar, most of which he intended to graft, as the farmers in Sherborn set out Baldwin apple trees and graft with the Roxbury Russet, finding they can get a tree in half the time it takes to rear one from the nursery.

In the last two years many peaches have been exhibited here, and the crops have been remunerative, and it is probable that an unusually large number of trees will be planted the coming spring. It is difficult to name the best varieties, and the speaker suggested whether we might not produce improved varieties by planting the seeds of the best kinds. A large proportion of the trees are affected with the yellows, the first indication of which is the high color and premature ripening of the fruit, before the disease is shown in the leaves. The buds and seeds carry the contagion, and hence in propagating by either, care should be taken that they are from perfectly healthy trees.

We live on the extreme northern boundary of the grape region, and should aim to lengthen the season by choosing the most favorable situations for the growth of this fruit. Dr. Fisher, the leading grower for market, says that by means of a southern aspect, we can gain the advantage of a climate two hundred miles further south. The varieties eligible for market culture are very few. At the head stands the Concord, of which Dr. Fisher says that if it were wiped out, grape culture for market would cease here.

Moore's Early, though not tested in all soils, has been sufficiently cultivated to come next. The speaker had seen it for the last six years, though not under particularly favorable circumstances, ripening two or three weeks earlier than the Concord, and equally as good in quality. The only question in regard to it is whether it will do as well under all conditions. The Worden is not tested here so much as west of us; at Worcester it is grown more than any other kind, and is large and handsome, and said to be as early as Moore's Early, and not to mildew. Other new varieties are being introduced, and the speaker thought we must look for improvement in pure native seedlings, and not in hybrids. The latter will do for amateurs, but not for market. There is not a single hybrid that does not suffer more or less from mildew. Many persons will be deceived by the favorable season last year, and plant them, but they will be disappointed three years out of four.

In strawberries also, the amateur may indulge his bent, while the grower by acres will select carefully. The Charles Downing stands at the head of the list for market; the plants are vigorous and prolific, and the fruit is of good size, and the second and third pickings hold out in size. The Wilson, which for the last ten years, or more, has been most reliable for money, has lately failed in some localities, and now stands second. Few persons who buy their strawberries have ever eaten a ripe Wilson. When fully ripe, it is of a very dark crimson color, and of fair quality; before it is ripe, it is bright scarlet, and it is picked then. It has size, color, and form, and bears transportation well, and will grow anywhere, and produce more on light soils than any other variety. The Seth Boyden (Boyden's No. 30), may be placed next, though it has not been so generally grown as the two preceding. After the first picking, the best berries are gone; there will be good ones in the second and third pickings, but not as many as with the Charles Downing or Wilson. The only new variety named by Mr. Wood was the Sharpless, which as yet has been shown here only by the Arlington and other cultivators, who grow everything well; but all indications point to it as the most promising new kind. It is said to be among the most prolific. The Crescent Seedling is recommended as growing anywhere, and as a weed-killer, which is undoubtedly true, but in quality it is inferior to the Wilson, and that of the Wilson is as low as the Fruit Committee dared to go.

Blackberries always command a ready sale at good prices. The greatest difficulty in their cultivation is in carrying the canes through the winter. The Dorchester and Kittatinny are two of the best. The latter is the hardier; though it winter-kills some, there are generally plenty of canes left.

Of raspberries, as seen here, Mr. Wood recommended the Franconia, Clarke, and Herstine. The first is well known. Some might take exception to the Clarke, but he had seen the best success with this variety. A neighbor sold six hundred dollars' worth from a third of an acre. The Herstine is new and prolific, and commands the best price.

In looking back over the list of fruits recommended, Mr. Wood noticed the suggestive fact that four out of the five apples recommended, are natives of New England, and that three of these originated in Massachusetts. Of the twelve pears named, four are of American origin, and two of these are from our own vicinity. This points out that we should look for improvement in native seedlings, rather than in foreign varieties.

The discussion and practice of fruit growing afford a great deal of pleasure as well as profit. All who have engaged in it will agree with A. J. Downing, that, "fine fruit is the flower of commodities; it is the most perfect union of the useful and the beautiful that the earth knows. Trees full of soft foliage; blossoms fresh with spring beauty; and, finally, fruit—rich, bloom-dusted, melting, and luscious—such are the treasures of the orchard and the garden, temptingly offered to every landholder in this bright and sunny, though temperate climate."

Discussion.

Hon. Marshall P. Wilder said that he had been exceedingly interested in the able and practical remarks by the Chairman of the Fruit Committee, and agreed generally with his views. The subject is so broad that he hardly knew where to begin. Thirty years ago he began to preach to fruit growers to raise native seedlings, adapted to their own locations, quoting the advice of Van Mons to "sow perpetually." For thirty years the Newtown Pippin commanded the highest price for exportation, but now there are a hundred Baldwins planted to one Newtown Pippin. Everywhere, except in the South, the Baldwin receives the highest marking, and we shall raise others as good.

Mr. Wilder said that he had had more experience with pears than with apples. As we progress, the list of the best varieties will change. He thought he had had more experience than any other person with Clapp's Favorite. It was said by some to rot at the core, and it made him indignant to hear it. If it did it was caused only by the want of care and skill on the part of those who make the complaint. They do not realize how early it is, and do not pick it early enough. Here, it should be picked by the 15th of August. All early pears must be picked before they are ripe. The Sheldon, Merriam, and Buffum are valuable market pears, but not one of all the thousands of varieties imported has come up to the Beurre d'Anjou. It had been his most profitable variety the last season, bringing $2.50, $2.75, and $3 per bushel, with the last sales at $6. After the Bartlett, in value as a market pear, comes the Doyenne Boussock. It is a vigorous grower, and makes an amazingly large tree. He picks one half early — before they are fully grown — and ripens them off for market, and those left attain a fine, large size. The Buffum also should be picked early; he picks half his crop the first of September. When thus treated it yellows finely, and is just the size for market, and was pronounced by A. J. Downing nearly as good as the Seckel. He has trees of this variety that produce an average crop of not less than five barrels, and one tree has borne twenty-two bushels. He has had the same experience with the Merriam; and Mr. Hovey, who formerly differed from him in regard to the value of these fruits, has come round to his ideas. Merriams, picked early, are luscious; if not picked early they become yellow, with a red cheek, and hang on the tree; and though they grow larger, they get a little mealy. This and the Buffum are both natives. Mr. Wilder said he could do nothing with the Duchesse d'Angouleme, but Patrick Quinn, of New Jersey, raised two thousand bushels last year, for which he expected to get five dollars per bushel; and a gentleman at Brighton had four hundred bushels. Taking the country through, it is the largest market pear, and one of the most popular.

Mr. Wilder said he had often been called to account for saying that if he could have but one pear, he would plant a Vicar of Winkfield; but this was many years ago, when we had fewer varieties than we have now. All agree that it makes one of the most beautiful trees. He had one tree that produced five bushels, which were in eating from October to April. The late Samuel Walker, who

was for seven years Chairman of the Fruit Committee of this Society, expressed the same views, and Mr. Hovey considered the large specimens very valuable. They had sold for ten dollars per barrel, and the finest brought three dollars per dozen; but the tree must have age to produce such. This was thirty years ago. Dana's Hovey, another American variety, and the Seckel, are preëminent for quality throughout the world. We may get larger varieties of equally fine quality, by sowing seed. The Doyenne du Comice has done tolerably well with the speaker, but when it has once fruited it will not soon bring a fruit bud again on the same spur, and the terminal wood is liable to be killed.

Mr. Wilder differed from Mr. Wood in regard to foreign blood in grapes. He remembered when hybridization was first practised on grapes, and some of the persons who then laughed at it now admit its happy influence. We do not want too much foreign blood mixed with the native. He had never seen a grape—not even the Concord—absolutely untouched by mildew, but he had seen none to do any injury on the Wilder, Lindley, or Massasoit. The Brighton, which has one-quarter foreign blood, has never mildewed with him in six years. There is nothing but is subject to disease in some seasons, and we must have regard to these facts. The Concord is the grape for the million; Moore's Early is two weeks earlier, and the vine is of great vigor, and the speaker hoped it would prove of better quality than the Concord, and adapted to as wide a range. Half a million barrels of apples have been exported from Boston the past season, and we shall soon send native grapes as well as apples. The early varieties may be grown in England. The Hervey Davis is one of the most promising strawberries. The Crescent Seedling is pretty good to eat when you can get nothing else, and it is a pistillate variety which may become the mother of a valuable race, possessing the same hardiness, vigor, and productiveness, with better quality. The speaker had seventy plants in pots of Crescent Seedling, Hovey's Seedling, and other pistillate varieties, which he intended to fertilize with the best kinds. The art of hybridization can be practised by every one, and we are raising thousands of new fruits by its agency.

John B. Moore thought the list of apples presented by Mr. Wood a very valuable one. The Roxbury Russet is peculiar in its wants, and does not do well on his own grounds; the fruit is apt to be wormy. It wants a stiff soil. The Gravenstein is universally

popular. The Hubbardston Nonsuch is also peculiar; but, unlike the Baldwin, it will grow anywhere. The original tree, which the speaker had visited, stood in an orchard of natural trees, on a west slope in cold, wet, springy land, and it will succeed in such land, while the Baldwin and Hunt Russet will not, and on warm soils also. It is not adapted for exportation, because it is in use only a short season. The Hunt Russet originated in a warm soil. Fruits originating on such soils require warm soils to grow in, while those originating on cold soils will grow anywhere. The Hunt Russet is one of the hardiest varieties. The Rhode Island Greening has something the same traits as the Roxbury Russet, and wants a clay soil. Mr. Moore thought Mr. Wood's list of pears a good one, except the Vicar of Winkfield, which is only a cooking pear. The tree is beautiful and vigorous, and the fruit looks well in the box or barrel, but does not taste well and does not sell well.

Mr. Wilder remarked that the Massachusetts Agricultural Club had a plateful of Vicars placed before them, which they thought as good as any variety.

Mr. Moore replied, that Mr. Wilder, in speaking of the Vicar, put in a qualification which he did not. He had had a crop of fifty bushels. You may sell them to a man once, but you cannot a second time. The Buffum is the same; the tree is beautiful and productive, and the fruit is not the worst that ever was. Dana's Hovey has only one fault—it is not large enough. The tree makes stout, stubbed shoots, but does not extend rapidly. If planting only six pear trees, he would have one of them a Dana's Hovey.

Mr. Moore agreed with all that had been said of the value of native fruits. He had seen the Wilder, Massasoit, and Barry grapes mildew to such an extent that the crop was spoiled. The solid, substantial improvements in grapes have all got to come from pure natives. He did not know much about the habit of the Worden, but thought it promising.

Miner's Great Prolific is one of the most promising new strawberries; one-third of Mr. Moore's planting last year was of this variety. It is not as soft as the Charles Downing. He has a far better opinion of it than of the Sharpless; the first berries of the latter are large but homely and tasteless. The Wilson is grown largely at Concord, but it is going out of favor. Mr. Moore cannot grow them on his low land, but can on the hill. They bear

transportation better than any other variety. The fruit is picked when it is red, before it is ripe. Some people think it is one of the finest strawberries, but it requires two boxes of sugar to one of fruit. Though the Seth Boyden has been in cultivation many years, it has not much hold on market growers. The Crescent Seedling is soft and of poor quality.

The Wachusett Thornless blackberry has been planted by growers in Mr. Moore's neighborhood, and is succeeding. It is pretty free from thorns. The Kittatinny is more hardy than the Dorchester, and the Wachusett more hardy than the Kittatinny. He had known the Wachusett to be winter-killed, though Mr. Hadwen had not. It does not come up in size, but there may be a hardy race, with larger fruit grown from it, as the parent. Mr. Moore asked why no one had improved the blueberry and huckleberry. One variety of blueberry has long racemes of flowers, as beautiful as those of the lily of the valley, and is more beautiful as an ornamental shrub than many that are planted for ornament. He had sown the seed, but never succeeded in making it vegetate.

Mr. Wilder suggested scalding the seed.

O. B. Hadwen, wished to stand up and commend Mr. Wood's opening address. He had never heard one that he could take so few exceptions to, and so concisely expressed. He thought the Sutton Beauty combined more good properties as a market apple, than any mentioned by Mr. Wood. It is of fine quality, keeps well, bears as well as the Baldwin, and outsells the Baldwin in Worcester by a dollar per barrel. It originated in the town of Sutton, ten miles south of Worcester. The Palmer Greening or Washington Royal resembles the Newtown Pippin, and is the peer of that famous variety. It is in good eating condition from December to May. Mr. Hadwen commended the Wachusett blackberry; it has taken the highest prizes in his section; is perfectly hardy, wonderfully productive—more so than any other variety—and, though not so large as some, is large enough, and the quality is good enough.

Charles M. Hovey said that he had never made a business of cultivating market fruits. He did not want it to go out from the Chairman of the Fruit Committee of this Society that the Wilson strawberry is fit to eat at all. He supplies his neighbors with a few strawberries, perhaps two or three hundred boxes, and in two or three instances, a few Wilsons were sent, and nobody wanted them

a second time. It is only valuable for cooking. One of the Fruit Committee thinks the Merriam pear is not worth eating, but Mr. Hovey could not agree with him. About twenty-five years ago, the late William B. Kingsbury brought him the first specimens he had ever seen, which were not good; the next year they were nearly first-rate, and he grafted twenty-five or thirty trees, and wishes now that he had grafted more. It will sell better than the Beurre d'Anjou. The first time he saw the Sheldon it was brought to the meeting of the North American Pomological Convention, at Buffalo, N. Y., in 1848. It was pronounced by Patrick Barry, and others, the Gray Doyenne, but he ascertained the history of the tree, and was satisfied that it was new. He procured some scions, with which he grafted three hundred trees. He then thought it the finest pear he ever ate in his life, and there are few that equal it today. The Vicar of Winkfield will bring two or three dollars per bushel, in a scarce year, if the specimens are good.

Mr. Wood replied to Mr. Hovey's criticism on his recommendation of the Wilson strawberry for market, that we could not ignore a variety sold to a larger extent than any other.

Benjamin G. Smith remarked that the King of Tompkins County apple is highly esteemed in London.

Mr. Wilder alluded to the Pocklington grape as a new variety, giving promise of value for market. It sprang from a seed of the Concord, saved and carried home by a lady. The vines in Mr. Pocklington's grounds ripened their wood and shed their leaves so early that he pruned them on the 15th of September.

President Hayes said that George S. Curtis, one of the largest dealers in fruit in Boston, when his advice as to the best apples for a market orchard was sought, recommended half Baldwins, and Gravensteins next; but on second thought advised three-quarters Baldwins, and then went on discussing until he concluded that it would be best to plant all Baldwins. The Baldwin is the best stock to graft other varieties on, and it is easier to cultivate the ground under the trees than under most kinds. Large orchards in Western New York have been planted wholly with the Baldwin, on Mr. Curtis's recommendation.

It was announced that on the next Saturday the question, "How shall Southern Competition in the Small Fruit Market be met"? would be discussed, and the desire was expressed that it should be

understood that these meetings are open to all, and that all interested in the subjects discussed are cordially invited to attend.

BUSINESS MEETING.

SATURDAY, February 5, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair. No business coming before the meeting it

Adjourned to Saturday, February 12.

MEETING FOR DISCUSSION.

The subject assigned for today was "How shall Southern Competition in the Small Fruit Market be met." The President called first on William C. Strong, who said that he was wholly unprepared, and, therefore, spoke with hesitation, but expressed the view that competition should be met in a determined spirit. We can grow small fruits here as well as the Southern cultivators, and though they employ a very cheap class of labor, we can also produce fruit very cheap. It has been said that apples do not pay, and if the time of all persons were as valuable as that of some, they would not, but if we select the right locations, away from cities, where land is not taxed for a prospective value, and with suitable soil, we can produce apples at a fair profit, at a dollar and a half per barrel. So with small fruits,—if we set about their cultivation in the right way we can produce them at a profit. But it must be done systematically, and too large profits must not be expected. Raspberries have a local value, for they cannot be sent even from New Jersey. No other small fruit bears so high a price, or will pay as well here. If we put brains into our work, the twenty-five or thirty cents per quart which raspberries bring, will afford a good profit. Cultivators must put as much thought into their work as merchants and manufacturers do into theirs.

William H. Hunt said that the subject of discussion was one in which he had taken much interest. He agreed with Mr. Strong with regard to the profit. He had cultivated strawberries, raspberries, and blackberries, at Concord, and had found them all

profitable. He had discovered some points in the cultivation of raspberries, which if he had found them out sooner would have been of great value to him. He had them planted on a hillside where they succeeded well, and afterwards set them on a flat at the foot of the hill, where the soil was better, but was much disappointed to find the result very poor there. He thought they should never be planted on low, flat land. This land was not wet; water would not stand there. In raspberry culture we are free from the competition of a Southern crop, but the liability to rainstorms, at the time of picking, is a drawback. The storms are particularly injurious when they occur the last of the week. Mr. Hunt thought raspberries must be still more profitable nearer Boston. The land where he raises them at Concord is worth about one hundred dollars per acre. He covers all his in winter, and does not believe there is a red raspberry in existence that will stand severe winters without covering. The Franconia is the best variety; it possesses the firmness which is necessary to a market berry. He had tried other kinds but discontinued them soon. Some raspberries will endure some winters, but none will stand hard winters. He thought some winters would kill the wild raspberry.

The growth of his raspberries was not more luxuriant on his flat land than on the hillside; the latter was moist, but well drained. The canes in both fields were killed if not covered. On the low grounds the buds were killed when they were uncovered, and the tops were mostly killed. The crop never more than paid for the year's cultivation. On the hillside he never failed to get a crop. Although his raspberries failed on the flat land, one of his neighbors has always been successful on similar land. The frost may have taken his before the wood was ripe; they retained their leaves longer than elsewhere. It is not so much labor to cover raspberries as people suppose.

Strawberries raised here come in competition with those grown at the South; still, Mr. Hunt thought they could be raised here at a profit. He thought farmers near railroad depots could cultivate them to advantage. For two years he kept an account of the expenses and income of his strawberry patch of seven-eighths of an acre. One of these years, which was the best he ever had, it produced a trifle over nine hundred dollars' worth, while all the expenses were included in four hundred dollars. The variety was

the Wilson, and he was glad to hear a good word spoken for it last week. Eight years ago it was the only variety from which he got any profit. He has no doubt there are many better ones now,—it is far from perfect, but it is hard, so as to carry well. The berries do not waste in long rains. Growers are obliged to pick them before they are ripe. The Charles Downing, under the same culture as the Wilson, produced only one dollar's worth where the Wilson produced three. The Wilson has gone out of favor at Concord, but one of the largest growers still adheres to it. Last year he set out Wilsons, but the plants were weak, and made few runners. He could not say whether it had run out, but he meant to get some good plants and see.

He has always cultivated the Kittatinny blackberry, and had a fine crop last year. Once in from two to four years the canes are winter-killed. Some seasons it bears a moderate crop at the usual time, and afterwards a second crop; it is not profitable then. He has not fruited the Wachusett, but has seen it; and though the fruit is smaller he thinks it will bear more quarts than the Kittatinny. He thinks Massachusetts farmers can grow blackberries profitably if they can get a hardy one. It is impossible to cover the canes. If we are to meet Southern competition, it must be by the best varieties and improved culture. The most serious difficulty is that we have to pay the highest prices for labor—ten cents an hour for women and children—and it is difficult to get at that price. We cannot drive out Southern competition, but we can meet it.

Hon. Marshall P. Wilder wished to inquire what the Southern competition is that we have to meet.

Charles F. Curtis said that it was mostly in strawberries and blackberries, and but little in raspberries. Few of the last arrive in good condition, while the Southern blackberries furnish almost the whole supply. He thought that from one-half to three-quarters of the strawberries sold in Boston market came from south of New York. The greater part of these are Wilsons, and this variety is also grown by those in this State who have to send them some distance to market. Florida berries should be here now; a few have been sent to New York. The price depends on the condition; they may come in good order for three or four days, and then there will be a bad spell, and they will average from twenty-five to thirty-three and a third per cent. less for

Southern and New Jersey fruit. The "native" berries ripen rapidly in warm weather, and sometimes Connecticut berries come in bad condition.

Mr. Wilder thought the Southern competition was not injurious, but beneficial. We get strawberries from the South a month or six weeks before they are ripe here, and though the Wilson and Nunan are not much esteemed, they are acceptable in the absence of better. They do not command as high a price as those grown here. The speaker thought it a great advantage that we could have these early fruits, and they create an appetite for our own when they are ripe. The prolonging the season is very desirable, not only with respect to the strawberry, but other fruits. The new strain of peaches lately introduced has lengthened the season of that fruit, and it is desirable by scientific means to raise varieties of that and other fruit which will prolong the season still further. Peaches are sold for a cent each here which would cost sixpence each in England. The case is the same with blackberries as with strawberries; we can get them from the South a month earlier than we can raise them here. We can compete with the South in this fruit also if we plant them, but no one here has planted them by the fifty acres, as is done at the South. The Snyder blackberry is very hardy,—the speaker had never heard of its needing protection,—and it is an enormous bearer. The Wachusett Thornless is very nearly hardy. All can be made to stand the winter better by nipping the canes when three or four feet high, and, if the laterals grow too strong, nipping again. The Dorchester and Lawton never fail with the speaker; they grow by a fence without cultivation. We cannot change the order of nature; we cannot get a grape ripe here by the first of August, but we can have them from the South at a very moderate price.

The Franconia is the best of the red raspberries. Mr. Wilder related the history of the introduction of this variety as follows: Two plants were sent to the late Samuel G. Perkins, by Vilmorin & Co., of Paris, forty or fifty years ago, and from these all the stock in this country and Europe has been derived. In the same way the Knevett's Giant was received by Mr. Wilder from Chandler & Co., of Vauxhall, England, and neither of these varieties is known in Europe, except as received from this country; Messrs. Vilmorin, knowing nothing further of the Franconia, nor Messrs. Chandler of the Knevett's Giant.

Although native grapes will survive the winter they are better for covering. The Lindley (Rogers's No. 9) has been grown in Canada; the Wilder (No. 4) can be grown for market, and the Pocklington promises to be adapted to cultivation for market. The Wilson strawberry is hardly fit to eat, unless we get it before we have anything else. It has been a question whether we shall ever get a variety to supplant it, but the speaker fully believed that we should produce an abundance of varieties of good quality, and equally adapted for market. It would be ridiculous to think otherwise.

J. W. Manning thought that the low price of strawberries discourages cultivators here. At Dighton, in this State, where large quantities are grown, they average only eight cents per quart to the grower. These do not come in competition with fruit grown further south than Connecticut. He thought people got satiated with small fruits before ours come into market. The Wachusett is one of the hardiest blackberries, but it wants high cultivation. Marshall Miles, of Concord, has a field which is very profitable. We want a better quality of peaches than we receive from the South; they are not equal to those grown here. Peaches can be grown profitably here; at Groton, peach growers are successful on high land, and G. & H. Whitaker, there, are successful, next to Dr. Fisher, with Concord grapes. The speaker had never seen larger or finer peaches in Missouri than he had seen grown in New Hampshire. At Mason, in that State, there is a fine orchard with a southeast aspect; others have a southerly aspect. At Goffstown, east of the Uncanoonuc mountains, peaches have not failed for twenty years, and the peach crop is considered the best on the farms. The late ones bring good prices for preserving; if any variety fails to ripen, it is the Crawford's Late. The land at Goffstown is a thousand feet higher than here. At Lyndeborough, in the same county, Charles Holt is successful with peaches, and formerly cultivated Catawba grapes successfully, but this variety has been displaced by the Concord.

Leander Wetherell remarked that peaches are grown successfully on the hills in Franklin county, Mass.

E. P. Richardson said that one point in favor of the raspberry is its value for canning, because it retains its peculiar flavor better than any other fruit. The Philadelphia is especially desirable for this purpose, on account of its fine color when canned. A grower

at Lawrence, cultivates this and the Wachusett blackberry largely, and his fields of the latter form a magnificent sight. He disposes of his surplus fruit by canning, and has found it profitable. Mr. Richardson thought the Dighton growers should ask a fair price for their fruit; they send it in as the season for Southern fruit is closing, and it sells at low prices, which establish the price of all the fruit grown here.

President Hayes said, that as a director of the Old Colony Railroad, he had been astonished at the wonderful quantity of strawberries grown in Dighton, and the extensive arrangements required by the railroad company to bring them to market.

Dr. E. L. Sturtevant thought that one of the duties of the friends of horticulture, is to educate the public to discriminate between the different varieties of fruit, and to give higher prices for the better qualities. If we can educate the people to appreciate the quality of the Triomphe de Gand strawberry, the growing of that variety might become profitable. The Society should make some effort in this direction. He had seen finer blackberries in the woods in Maine, than he had ever seen in cultivation. They always grew in the shade. He spoke of one field of wild blackberries, sheltered by alders, which was fenced in, and formed the most profitable part of the farm. His first appearance in print was when he sent a wild blackberry three and one-eighth inches long, to the editor of the Farmington Gazette. We can cultivate these varieties or produce new ones, but he was under the impression that all the kinds now cultivated in our gardens were no better than some to be found growing wild.

Mr. Wilder said that the finest wild blackberries are found in the borders of the forest. When the Improved High Bush blackberry, now known as the Dorchester, was exhibited before this Society, in 1841, by Eliphalet Thayer, of Dorchester, who cultivated it in his garden, he went the same afternoon with the late Cheever Newhall to see the fruit. Dr. Sturtevant's impression that the garden varieties were found growing wild, is correct, with regard to most varieties; but three kinds, the Orange, Warder, and Wilder, were raised in the West by a Mr. Orange, about twenty years ago. They were not of good color, and have not come into cultivation.

Mr. Curtis thought it was for the advantage of growers here to have Southern fruit in the market, as it produces a desire for our

own. Many of the berries grown here are no better than Southern ones. It does not take a provision dealer more than forty-eight hours to find out whether a particular mark means good or poor fruit; and, while the good is engaged two days in advance, the poor will remain piled up waiting for the hawkers. The taste of the people is being educated; there seems to have been a great improvement within a year or two, and a demand for the Sharpless and other large and fine berries. If the arrivals are largely Wilson, buyers will wait and see what comes by the next train.

Benjamin P. Ware thought the question before the meeting not difficult to answer. Southern small fruits go out before ours come in. He has occasion to use a good many, and he finds that when they are marked "native," he has to pay a considerable advance. People have become accustomed to having fruit, and when ours comes, they are ready to buy. The case is the same with peaches, except Hale's Early; the natives are higher. Southern grapes, also, are in the market long before ours come. Blackberries are got largely from the South, because we do not cultivate largely. The competition is not to our detriment, but to our advantage.

Josiah W. Talbot said there are two points from which to view this subject—as members of the community, and as growers of fruit. From the former point of view Mr. Wilder is correct in considering the Southern competition in small fruit an advantage. A neighbor of the speaker who formerly got twenty-seven cents per quart for his strawberries, now has to sell for sixteen, but he can raise them at a cost of eleven cents. He thought the price was reduced on the average twenty-five per cent. through the introduction of Southern berries. When the market is glutted the Dighton growers come in, and have to take Southern prices. The remedy is to make the quality of our fruit such that the South cannot compete successfully with it.

Mr. Strong said he believes the time is coming when we must reduce the price of fruits as well as of manufactures, so that all can have them. We are sending forced flowers South already, and if we go into the culture of small fruits on as large a scale as is done in the South, we can raise them as cheaply. The difference between eleven and sixteen cents is profit enough for Mr. Talbot's neighbor. We should not try how much money we can get out of the community, but the object of the Society should be to bring good fruit within the reach of all.

Mr. Manning said that the matter of labor is a very important one. Franklin Davis, at his nursery in Richmond, Va., pays his help partly in rations of Indian meal, molasses, and bacon; none receive above fifty cents per day and rations. At William Parry's extensive small fruit gardens, at Cinnaminson, N. J., the speaker had seen whole families living in barns and cooking out-doors, during the picking season. We cannot obtain labor at the prices paid in these cases.

Mr. Wetherell said that he should as soon think of talking about competition between strawberries here and in New Brunswick, as between those raised in the South and those grown here. He endorsed all that Mr. Curtis had said. Dighton berries in good order do not sell for the tail end of Southern prices. Mr. Wilder had struck the key-note in his remarks. The speaker mentioned a dealer who said he rejoiced in low prices, because they brought fruit within the reach of the poor. This discussion is in the direction of producing better fruit at low prices. In fruit growing, as in dairy farming, success depends on skill in business. The choicest butter will bring eighty cents per pound, and good fruits never go begging for remunerative prices. The South may grow the best fruit and send it here, and we shall be glad to buy it.

N. B. White said that Southern grapes come in competition with ours, because grapes can be kept. He thought Dr. Sturtevant's suggestion, to educate the taste of the community, a good one. The Society should give premiums for quality as well as size of fruit.

Mr. Hunt said that growers should not be discouraged by the low prices of last season. It should be remembered that the season was hot, and forced the strawberries to ripen early. The Philadelphia raspberry is the greatest bearer, but the fruit is not firm, and turns a little black.

Mr. Strong suggested that we should cultivate so well here as to turn the tables on the South.

President Hayes gave an account of some of his observations of Southern gardening a year ago. As the train approached Charleston, circulars were placed in the hands of the passengers, giving information concerning a garden at Magnolia, sixteen miles from the city. He was one of a party of thirty or forty who visited the garden, going up the river, passing the phosphate beds, the factories for grinding phosphates, and the alligators lying on the

banks. The garden was from forty to fifty acres in extent, and here, in the month of March, magnolias, azaleas, convolvuluses, and roses of exquisite varieties were in bloom in profusion. President Hayes was struck with the difference in the ease of cultivation here and at the South; the proprietor said that all he had to do to grow any of these flowers was to get a little slip and plant in the ground. The whole secret was the wonderful supply of manure. Before the discovery of the value of these phospates as fertilizers, they had been thrown into the river.

St. Mary's, Georgia, was once an aristocratic place, with fountains in the centres of the streets, but it is now deserted, and land in the vicinity has fallen from five hundred dollars to one dollar per acre. Here he met a gentleman who told him that his father, while at a dinner party, received news that a vessel had gone ashore with a cargo of pecan nuts, and though his friends told him he was too old ever to see any fruit from them, he got a quantity of the nuts and planted them along his garden; and now the trees from these seeds yield from four to five hundred dollars worth of nuts annually, forming his main support in his old age, and he has to watch that the nuts are not stolen. Here, also, President Hayes met Mr. Alexander Curtis, a graduate of Cambridge University, England, who was engaged in raising fruit and vegetables, but wanting a market, and Northern capital to enable him to erect a few small greenhouses.

In Florida the sandy ground presented a very unprepossessing appearance, and they saw very little foliage, and were much disappointed at not getting green peas and other early vegetables, but found the growers did not keep them for home use, but sent them all to the Northern cities. The only good beef came from Boston and New York. His wife said that another winter she would stay at home and have the tropics in her own house.

At Fernandina they expected to find bananas, but they all went to New York and Boston. On board the steamer, on their way to Savannah, there were over three hundred cases of cucumbers, and large quantities of cabbages, but not one was landed at Savannah; all went to New York, and they had none at their hotel in Savannah. At Baltimore they got some Southern fruit, and at New York plenty.

Mr. Wilder said that the result of the discussion today was exceedingly gratifying to him. We have settled that there is

really no competition between the South and North in small fruit growing worth speaking of. Dr. Sturtevant's remark that we should seek to educate the public taste is correct; it is what we have been trying to do for fifty years. The sixteen thousand bushels of strawberries brought from Norfolk to Boston, and the ten thousand bushels from Dighton, have enabled many to eat strawberries who never tasted one before. Mr. Strong is right in regard to reducing the price of fruit. This, also, is what we have been aiming at for years.

The President gave notice that, at the meeting on the next Saturday, the subject of discussion would be "Peach Culture," to be opened by Caleb Bates.

BUSINESS MEETING.

Saturday, February 12, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair. No business being brought before the meeting, it

Adjourned to Saturday, February 19.

MEETING FOR DISCUSSION.

The subject today was "Peach Culture," and the discussion was opened by Caleb Bates, who said that, in planting peach trees, the first thing is to see that they are not set too deep. He preferred to have the collar entirely above ground, but they are generally set three or four inches too deep. When the collar is below the ground, excrementitious matter forms on it to the great injury of the tree, and makes an excellent place of deposit for the eggs of the borers. If the collar is above the surface, this effete matter does not form, and the borers do not find a congenial home around the collar. He always pours in water while planting the tree, to settle the earth around the roots. It is very important to see that there are no borers in the trees when planted; he once bought a lot of trees which had been puddled, and when the puddle was washed off he found that half the trees had from one to five borers each.

He did not agree with those who think peach trees do best in sod land; they are likely to be not more than four inches in diameter after twelve or fifteen years' growth, and to have three or four dead limbs to one live one. He aims to make his trees grow in regular shape and produce abundantly. If all the fruit buds on a peach tree are killed, the tree has nothing to do but to grow, and care should be taken not to feed it too highly, But if the buds are not destroyed and the fruit sets, by the last of May it will be of the size of peas, and then the trees should be liberally manured with concentrated fertilizers, such as guano or hen droppings, and it is astonishing to see by the dark green color of the leaves how quickly the trees respond to such treatment. If no fertilizer is applied the tree will ripen the fruit, but make no wood or fruit buds for the next year. Mr. Bates emphasized this point as the most important thing he could say,—force when in fruit, and withhold fertilizers when not in fruit. The peach is the only one of our fruit trees that bears on the new wood. If all the crop is destroyed, or if the tree has grown too fast, the young wood may be shortened. Theoretically, a perfect peach tree is a cone covered with fruit. Mr. Bates here exhibited a branch of a tree which made a total growth last year of one hundred feet; it was originally planted in a very poor soil, but afterwards came within the limits of a hen-yard and showed the effect of stimulants.

Mr. Bates said in regard to borers, that while some pile up ashes or sand to keep them from the tree, he believes these are just what the borer likes; they retain just enough moisture to hatch the eggs. He would rather have a bowl around the tree than a hill. Others advise putting paper around the tree, but he has fifteen hundred trees, among which there are no two butts alike. There are ribs where the roots run up, and between these are openings where the borers can enter. He advised to use a mason's trowel, and a six-inch butcher's knife, to scrape away and cut out the borers. A mat should be provided to kneel on. The first season the borer does not enter the wood, but remains in a cavity outside, where it can easily be scraped off. He keeps hens for the benefit of his peach trees, and feeds them in the afternoon with cracked corn, throwing a handful around each tree. Peach trees seem to be exceedingly sensitive in regard to having anything growing among them, and Mr. Bates advised that no crop whatever should be planted, but that the ground should be left entirely bare.

The "yellows" in the peach is a very difficult subject. It destroys the trees from Plymouth bay to the bay of San Francisco. John Rutter, the author of a book on the culture and diseases of the peach, is of the opinion that it is caused by a lack of potash in the soil. This view is supported by the fact that some of the best trees the speaker had known, grew where the rubbish from repairing a house was deposited. The effect of lime on vegetable matter is to produce potash. He did not see how we can put a stop to this disease, with infected trees all around us, and nurserymen sending out diseased trees. He got his trees from a nursery at Newbury, where he found a healthy stock. He has known the yellows to affect trees a quarter of a mile away from any diseased tree. People are very unwilling to remove an infected tree. A diseased tree dies very quickly, if young, but if old it lasts a good while. The disease will run through a row of trees, and poison them, before the effect is shown outwardly. It needs a bold hand to take the tree up immediately. It should not be allowed to ripen fruit. Plenty of lime and potash should be used, if the soil is exhausted of these.

Mr. Bates said that his location gives him peculiar advantages for learning the ability of different varieties to resist frosts of varying severity. This can not be ascertained by any scientific test, but only by observation. Among thirty-two varieties, the Ives's Blood and Hale's Early appear as tough as the oak. The Coolidge's Favorite, E. S. Williams, and Salway come next. Among all the rest there is not much difference until we come to Crawford's Early, Crawford's Late, and Snow, which are very tender. In 1879, a frost on the 24th of May rose up like a tide; but the Hale's Early gave a handsome crop, while the Coolidge's Favorite were killed higher up, and the Crawford's Early clear to the top. If he had foreseen it, he could have saved his crop by making a smoke on the windward side of the orchard. He has saved sweet potatoes in that way, and in one case saved his garden from the frost when the smoke rose up in a column, the draft bringing in the warm air from the forest.

In regard to quality, the Rogers's Seedling, a yellow fleshed variety, is one of the finest; it is of spirited flavor, resembling Crawford's Early. The Downer, another yellow fleshed variety, is excellent. Of white fleshed varieties, the E. S. Williams and Mountain Rose are fine; the Grosse Mignonne is good but smaller.

The Stump the World is later and excellent. The Snow is excellent, but tender. The Salway is too late for general cultivation in this climate, but good in warm locations and desirable in collections. It holds on to the tree well. Hale's Early is the most profitable because most certain. It should not be allowed to overbear. Mr. Bates has had them eleven and a half inches in circumference.

His soil is a sandy loam, the sandy constituent being sharp and gritty. Such land produces the finest peaches and sweet potatoes. He would not advise to plant on soils entirely of sand. The best locations are on plateaus and hills ; such places in Massachusetts are the safest for peaches north of Florida. Elevation has a wonderful effect. His house is on ground thirty or forty feet higher than his orchard, and the peach buds are safe there when they are all killed in the valley. The peach crop is much more liable to be destroyed by late frosts in the South than here. He does not believe there is any place equal to Eastern Massachusetts for the production of peaches of high color and high flavor, though the western part of the state is not bad. The shores of Maine and New Brunswick form a coast line against which the northeast winds raise a spray, and force a saline atmosphere across our State, while the whole length of the State projects beyond all the coast south of New York City. This results in the south and southeast winds bringing salt enough to blur our windows, as can be found by a touch of the tongue. This saline influence heightens flavor and color in all our fruits. He had had Catawba grapes covered with a bloom of salt where they were exposed to a concentrated draft of air.

The President here introduced to the meeting, John B. Russell, now of Newmarket, N. J., and the only survivor of the eight corporators of the Society, who thanked the President for the kind words in which he had introduced him, and expressed the pleasure which he felt in once more attending a meeting of the Society.

The President remarked that among the horticulturists present were many whose gray heads indicated their long experience in gardening, and he called on Hon. Marshall P. Wilder to speak of peach growing.

Mr. Wilder said that it is never too late to plant fruit trees, and that most of the gray-headed members present would live to eat the fruit of peach trees if they should plant them the coming spring.

He spoke of a gentleman who, at the age of ninety-two set out peach trees, the fruit of which he lived to eat. He agreed with Mr. Bates's view that we can raise peaches in Massachusetts which will compare with any in the world. If we select good kinds, and plant a few trees every year, we shall always have peaches. Before planting a tree he examines it carefully to see that it is free from borers, and ties around the base a piece of paper six inches wide—half above and half below ground. This will protect the tree from borers for one year and sometimes more. It is important to select the most useful sorts—he thought the Hale's Early, Early York (serrate), Crawford's Early, Oldmixon Free, and Crawford's Late, the five most valuable kinds. A few years ago the Hale's Early was the earliest kind, but the very early kinds which have been introduced within a few years have lengthened the season four weeks, and the later varieties which have been introduced to cultivation at the South, have prolonged it two weeks more. He advised to plant the stones of the best kinds, as seedling trees are the healthiest and longest lived. He intends to advise the saving of seeds and the crossing of varieties as long as he lives. If previous generations had done this we should have many more fine varieties of fruit than we have now. The crops of peaches in this country are wonderful; last year there were four million baskets from the Delaware peninsula alone —more than ever were raised in the famous gardens of Montreuil.

Mr. Wilder congratulated the Society on the presence of Mr. Russell, to whom, more than to any one else, the formation of the Society is due. In 1829 Mr. Russell kept a seed store in North Market street, where John Lowell, Elijah Vose, and other lovers of horticulture frequently met, to whom Mr. Russell suggested the formation of a horticultural society; and when it was decided to form one, he was the most active agent in carrying out the plan, and after it was formed he watched over its growth.

Mr. Bates admitted that it is not as much labor to apply paper as to scrape off the borers, but thought it was not as effectual. In answer to an inquiry, he expressed the belief that there is no particular temperature at which peach buds are certainly killed. They may be killed at zero or they may stand twenty degrees below. Much depends on the condition of the bud when frozen, and more on the manner in which it is thawed out.

George Webb, of Elizabeth, N. J., said that in Delaware the borers are scraped off, but nothing is ever put round the trees.

Charles M. Hovey said that he had had some experience in cultivating the peach since he was a young man. In 1806 Richard Peters read a paper before the Philadelphia Society for Promoting Agriculture, of which he was president, on peach culture, in which he detailed the difficulties that he had encountered, and the means he had taken to overcome them. Judge Peters and other writers complained that these difficulties were increasing, and that the climate was less favorable than previously; and every year since then people have made the same complaint, and said that it was no longer of any use to attempt to cultivate peaches. They recollect the abundant crops in former years, when they were young, but not the failures. The speaker thought we might count on a crop three years out of five, if we have the trees. He used to raise ten thousand peach trees in his nursery every year, and had a patch in the rear of his house, twenty-five years ago, which were left unbudded, and produced many fine varieties, three of which were thought worthy of names, and were called the Cambridge Belle, White Ball, and Hovey. About 1848 he made a collection of eighty varieties of peach trees, which grew up and fruited so full that the trees broke down. All the characteristics of the varieties were noted. He saw no reason why peaches should not be cultivated throughout New England.

The late A. J. Downing was of the opinion that the peach crop was destroyed whenever the thermometer fell to ten degrees below zero, but this has been found incorrect. But, if after severe cold there comes a thaw, and then the mercury falls to zero again, they are destroyed. The case is the same with nearly all plants; they will stand one frost, but the second freezing kills. In low grounds peach trees are more liable to be injured than on elevated land. Some persons say there is no growth in trees in the winter, but if we compare the condition of the buds of the abele on the first of November with that on the first of January, we shall find they are swollen, and if we examine them now we shall find them still more swollen. If peach trees get only moisture enough to keep them from drying up, they are more likely to stand the winter than if kept too moist. The trees must be pruned, if it is desired to keep them down. Mr. Hovey preferred to plant anew frequently, and spoke of a gentleman in Dorchester who plants six trees every year. He thought the best varieties for amateurs are Hale's Early, Early York, Coolidge's Favorite, George the Fourth, Crawford's

Early, and Crawford's Late. Peach trees in France are subject to mildew.

Benjamin G. Smith said that the buds on his peach trees, which are on the highest land in Cambridge, were uninjured. The thermometer had fallen to seven degrees below zero. The total failures have been exceptions to the general rule. He had had six or seven crops in the last ten years.

Joshua Coolidge, a grandson of the originator of the Coolidge's Favorite, said that since his boyhood peaches had been a failure, owing to the borers and yellows. When he was a boy, peaches were as common and required as little care as the coarsest weeds. Young seedlings sprang up in the orchard, and the fruit required thinning. He now cultivates only for family use.

John B. Moore was glad to hear such hopeful views expressed in regard to peach culture. A few years ago he was taken to task for expressing such views. He felt no doubt that we should raise peaches as well as ever we did. He has a good peach orchard, and if the buds are not killed, will have a crop. The location is the first thing to be considered; it never should be in a valley, but on hills or high table land. Soil that will produce forty bushels of corn to the acre is rich enough for peaches. It is a great mistake to force trees the first year or two; a moderate growth is all that is wanted. A good strong tree, one year from the bud and two from the seed, is better to plant than an older one. The main stem should be headed down to five feet, and the side branches should be cut off entirely; they will die if they are not cut off. If the trees are headed down to five feet, and the fruit is thinned, the trees will not need to be propped. The branches will start out horizontally, instead of growing upright and making sharp crotches. In shortening the previous year's growth, in later prunings, it should always be cut to an outside bud. When the trees are large, only the strong leading branches should be shortened; the lateral shoots bear the fruit. In five years the lower branches will bend to the ground without breaking. If the tree is cut down to two feet when planted, the branches will run up, and split down if not propped, and sometimes if they are. It costs a good deal to prop them. The speaker had planted peach trees from ten to twenty-five feet apart, but thought twenty feet best. This gives plenty of air and light, without which the fruit cannot color well. The soil should receive clean culture,

and no crop should be grown. He does not pity any man who loses trees by borers. He used to have a great many, but now he scrapes away the earth and puts on whale oil soap in the spring, and again the first of July. It is easy to cut them out. Nature expects the collar to be covered. The only serious trouble is the yellows, which has never been accounted for, nor has any remedy been discovered. The speaker thought it was caused by a fungus. Professor Goessmann claims to have cured the yellows, and Mr. Moore had been using the material which the Professor had applied, which may have prevented the development of the yellows. Ashes and bone as fertilizers will give the highest colored fruit.

In regard to varieties for market, the Crawford's Early is early enough, as it comes in just as the best Southern peaches are gone. Crawford's Late gets frosted once in four or five years. The speaker grows Coolidge's Favorite only for his own eating. The Oldmixon Freestone is good, but there is more money in the Crawfords. In pruning we must not be afraid to cut off strong wood pretty severely; sometimes shoots as large as a man's thumb must be taken off. In an orchard, which must be cultivated by horse power, the trees cannot be allowed to branch as low as in the garden. His land is a gravelly loam, about seventy-five feet above the valley. He is not particular as to aspect.

Mr. Wilder wished to commend Mr. Moore's general system of pruning, but he preferred to cut down a young tree to eighteen inches when planting. In the autumn it will be five feet high.

Rev. F. L. Capen had always been interested in peach culture. He believes in severe pruning for peach trees; they need as much pruning as grape vines. He would prune during the winter and then in spring you have a small top and whole root, and all the buds come out strong, and give large, handsome fruit. He thinks the yellows is due to the absence from the soil of some kind of food which the tree needs. The speaker had cultivated oranges in Florida, and said that neither the peach nor the orange would succeed with any crop growing around it. He advised those present to go South and raise oranges and fresh figs.

James P. King said that he planted a hundred peach trees eight years ago, and four years ago raised a great deal of fruit. He thought they should bear the third year. He could have told when he looked at the thermometer, when the buds were killed. They are not killed so much in winter as in the spring. He mulched

with spent tan — about three bushels to a tree — which by keeping the frost in the ground retarded the swelling of the buds, and prevented injury to the crop by late frosts. A neighbor (in Peabody) who pursued the same course, sold in two years, from half an acre of land, $790 worth of fruit of finer quality than the Southern. His trees are planted eight or ten feet apart. The buds are all right for a good crop this year. The Crawford's Early and Foster are the principal varieties; the Foster is very handsome, but the Early Alexander is ahead of all others as an early fruit. The New York nurserymen say it is a clingstone, and they do not think much of it; but it comes into market nearly as early as the Southern peaches, which are not to be compared with it. He thought these and the Oldmixon Freestone the four best varieties. The speaker advised all peach growers to try mulching with tan. He would pile it around the trees without removing the soil, and after it has served the purpose of retarding the buds, would remove it lest it should furnish a harbor for injurious insects. He had one tree affected with yellows, which looked as if it was caused by starvation. He took the tree away, but it appeared to have affected another tree near by, as seedling onions are injured by a bed of rareripes alongside. Trees affected with yellows should be immediately removed, as the disease is liable to affect any trees in the orchard. Those nearest are most in danger of injury. Even if the trees have fruit on them when the disease is discovered, they should be removed, the value of the fruit being of no consideration in comparison with the injury to the trees around. In planting he marks the ground with a large breaking up plough, taking care not to disturb the subsoil; this makes it easy to set out the trees. At the time of planting he takes off every branch and shortens the stem, leaving from two and a half to three and a half feet. If the top does not leave out he trims it down to the highest shoot. If the thermometer falls to twenty degrees after the buds are nearly ready to bloom, they would be sure to be killed, and it is to prevent this that he mulches with tan. If the ends of the shoots are injured by frost, they should be trimmed back to the live part.

The President announced that the subject for discussion the next Saturday would be "Plum Culture," with, perhaps, a continuation of Peach Culture.

BUSINESS MEETING.

SATURDAY, February 19, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair. No business being brought before the meeting it

Adjourned to Saturday, February 26.

MEETING FOR DISCUSSION.

The subject of Peach Culture was first taken up, and Caleb Bates referred to some criticisms on his recommendation to set trees with the collar at the surface of the ground. It had been objected that the borers would get into the roots, but he said it was as easy to find and destroy them in the roots as in the trunk. Nature always puts the collar upon the surface, as in forest trees which spring up from seed. Mr. Bates here showed two sketches; the first of the base of a pine tree growing naturally, and the second of the base of an apple tree; the latter was eleven inches in diameter, but would, he said, have been much larger if not planted too deep. The first is the plan of nature; the second is art. The tree does not lift in growing; the reason that trees planted as recommended appear to have their roots above ground, is that the roots increase in size. When trees are planted in soil which is made loose and mellow some distance below the roots, they should be set two inches above the surface to allow for settling. When a boy he planted some apple trees too deep, and they did not grow for five years; he then dug them up and planted them properly, and now they are thriving and productive trees.

George Hill said that he lives on what was a peach farm sixty years ago. The yellows is the greatest trouble in raising peaches. It appeared on his farm about 1848. This was the second instance in Massachusetts; the first was on the Coolidge farm in Watertown two or three years earlier. Since that time the trees in this State have never been free from it. Mr. Hill's trees bore well for three years after they were attacked. He thinks it is deep seated. Old trees, isolated in grass land, escaped the disease and died of old age, but when diseased trees were set out near them, they took

the disease. It appears about the fifth or sixth year from the seed. A nursery raised from the seed of peaches brought to our markets from the South will be sure to show the disease, and nurserymen are now collecting their peach stones from healthy trees in Missouri and the mountains of Virginia. Trees from such seed should be budded from the healthiest trees that can be found, and will then endure for five or six years. Mr. Hill said that as a member of a Committee of the Middlesex Agricultural Society he visited two peach orchards offered for premium; one of these, containing two thousand trees, was in Hudson, and the owner had also a nursery of four thousand trees. Mr. Hill saw symptoms of yellows there. The seed was got from New York. Any person planting a peach orchard must take new land, be very particular in selecting his seed and manure, and watch carefully every step, to avoid contagion. There still remain old, isolated trees which are free from yellows. The speaker saw some on Cape Cod, from twenty to fifty years old, which looked like the trees he used to see, before the yellows was known, and at Mashpee he saw a healthy tree thirty years old. Such trees as these will furnish healthy seed. The whole difficulty in raising peaches is the yellows; when this disease prevails new plantations must be made almost as often as of strawberries. Half of Mr. Hill's trees have begun to show yellows. The soil, aspect, elevation, and method of planting are of comparatively little consequence. He found the border of Spy pond, and a hill two hundred feet above, equally eligible. Old native trees gum more than trees from New Jersey. If you get healthy seed and raise healthy trees, it is very difficult to keep them so; pruning a healthy tree with a knife that has been used to prune a diseased tree will communicate the disease. When planting he would prune off all bruised roots, and prune the top to a straight stick, but not prune at all afterwards. His last orchard of two hundred trees of Crawford's Late was never pruned. He thought seedlings from healthy trees would be longer lived than budded trees. It is of no use to set a healthy tree in the place from which a diseased tree has been removed.

David B. Flint said that he had cultivated peach trees successfully on ground from one hundred and twenty to one hundred and fifty feet above tide water. He had covered the trunks of his trees with straw to protect them from the sun, as he saw done at Montreuil, where the trees are trained on walls, and thought it

beneficial. The straw is removed about the middle of May. Buds of the Foster peach inserted on the north side of seedling stocks came through the winter safely, when those on the south side were killed.

J. W. Manning said that he got buds of the Foster peach, and budded two thousand trees at Billerica, which showed the yellows in three years. He thought that peach trees planted deep would form new roots near the surface, and that plums and elms would do the same.

Benjamin G. Smith showed peach buds taken from several trees in his garden at Cambridge, none of which were injured. Hon. Marshall P. Wilder's, at Dorchester, and Mr. Flint's, at Watertown, were uninjured, while those of Edmund Hersey, at Hingham, and Mr. Bates, at Kingston, were killed.

Mr. Bates said that the buds of trees at his house, where the trees are not healthy, were uninjured, while those at his orchard, thirty feet lower, where the trees are healthy, were destroyed.

Aaron D. Capen spoke of raising peach trees forty years ago, from stones which he got at a garden in Roxbury, where the trees were all seedlings, all healthy, and all produced fine fruit. The progeny of these trees all produced fine fruit. He bought some Long Island trees, which proved to have the yellows, and communicated it to all these seedlings, and they were all destroyed. The disease will go through acres of orchard, and the only way to banish it is to destroy all diseased trees. Most of the seed from which nursery trees are raised, has been collected promiscuously, and there are two chances for them to take the yellows — from the seed and from the bud. Handsome dishes of peaches have been shown here, of some of which the Committee said at once, "These are from a diseased tree, and buds will propagate the disease." On the hills in Connecticut are found what are called "sheep peaches;" the trees are twenty-five years old, and healthy. It would be well to select pits from such trees as these to produce healthy stocks in the nursery.

Hon. Marshall P. Wilder, said it was learned long ago that diseased peach trees must be extirpated. He agreed with Mr. Hill's condemnation of stones gathered promiscuously; some of them must be diseased. If we plant the stones from our trees which are perfectly healthy, we shall get good kinds, and he

advised to grow them up without budding, believing that they will last longer.

John Owen quoted from Thacher's "American Orchardist," (page 207), a case where a tree supposed to be dead from the effects of the yellows, had large quantities of common wood ashes thrown about the roots during the winter. The next season it put forth its leaves vigorously, and bore an abundance of fine fruit. A small quantity of ashes was thrown around the roots the next fall, and the next season the tree bore so full that it was necessary to prop it up. Another gentleman tried the same experiment with entire success. The speaker asked why this cure was not continued. He raised one year fifty bushels of peaches. The Noblesse is the best of all—it is wonderfully delicious; it is of the color of a Green Gage plum and equal to it in quality, but the tree is tender. The George the Fourth is more solid than Coolidge's Favorite, and superior in quality. He had trees of Crawford's Late planted near a marsh, which never failed to ripen their fruit.

Mr. Wilder doubted whether we should find any remedy for the yellows, though experiments are under way at the Massachusetts Agricultural College, and in the experimental grounds of the "Rural New Yorker," in the hope of discovering a remedy. Professor Goessmann applied a chemical manure to a row of affected trees, which restored them for one year.

C. M. Atkinson said that some of Mr. Bates's points were new to him, and some he could confirm from his own experience. There was, however, one point which he had overlooked—the influence of the stock and of root pruning in retarding growth. He would have his peaches on the Muscle plum stock. But the plum is not so successful on the peach stock; five years ago he planted five plum trees, one of which sent up peach suckers, and last summer, when trees had nearly completed their growth, there came a heavy rain after dry weather, and this tree burst in fifteen or twenty places, and gum exuded. Peach stocks are, however, much cheaper than plum stocks, and plums budded on them will make marketable trees sooner, and hence there is a great temptation to nurserymen to propagate them in this way. The principle works two ways; the plum cannot take all the sap furnished by the peach stock and bursts, while the peach on the plum finishes its growth and ripens its wood earlier. In England, peaches are cultivated entirely on the plum stock. At the late John P. Cushing's place (now Samuel

R. Payson's), the speaker found peaches on plum stocks, planted by David Haggerston, and if he were planting one or a thousand, he would have them on plum stocks. He thought it would ward off the yellows.

Charles M. Hovey, asked whether peaches under glass are ever affected by the yellows. He had never seen this disease in the extensive peach houses of Samuel G. Perkins or Thomas H. Perkins, and it does not prevail in Europe, if it is known there at all. He thought we should have to look sharp to find any fungus connected with it, but it might be caused by climate. In 1857, there were more pear trees than peach trees killed; in 1861, the thermometer fell to twenty degrees below zero, falling sixty degrees in twelve hours, and the peaches and cherries did not get over it for years. In 1854 or 1855, there were so many peaches that he could not sell them in the market. He had had little trouble from the yellows. Peach trees grow so quickly that it is hardly worth while to doctor them. If he wanted to grow them for market he would plant ten acres, and when they failed, cut them down and plant ten acres more. He would plant on high sandy land. They cannot be grown so cheap on plum stocks as on peach; the great value of the peach stock is its quick growth and cheapness.

Mr. Atkinson confirmed Mr. Hovey's view that the yellows is unknown in England, or under glass in this country.

The subject of "Plum Culture" was here taken up.

Mr. Wilder said that formerly we raised the plum very successfully; the only troubles were the curculio and the black knot, and now from these causes they have almost gone out of cultivation. Samuel Pond and Henry Vandine grew them at Cambridgeport, almost as freely as currants. The curculio can be destroyed by jarring it down on a sheet placed underneath. The black knot should be cut out as soon as it appears. For a few years past, plums appear to have succeeded better than previously. He has only two plum trees left; one a Monroe, twenty-five feet high, which has some black knots that he cuts out, and another on the Canada stock, which it overgrows, producing an unsightly appearance. There are never any black knots on the latter. He hopes we are going to cultivate plums more successfully than a few years ago, and means to make a new plantation.

Mr. Wilder quoted from a report by Dr. T. W. Harris, in the "Proceedings of the American Pomological Society," for 1854, the opinion that the black knot is not caused either by the insects found in them, or by the black fungus, *Sphœria morbosa*, on the outside. He who will not protect his plum trees from the curculio, does not deserve to have plums, any more than he who will not protect his trees from canker worms, deserves to have apples. Ellwanger & Barry, of Rochester, N. Y., raise plums by cartloads; a man attends to half an acre of plums exclusively for two months. He spreads cloths under them morning and evening, and a sudden blow on the tree with a mallet jars the curculios down on the cloths, when they are gathered up and destroyed.

Rev. A. B. Muzzey said that he was a neighbor of the late Samuel Pond, and that Mr. Pond had most remarkable plums—Washington, Jefferson, Green Gage, etc., which always commanded the highest price—some of them two dollars per dozen. This was from 1835 to 1845 or later. Mr. Pond's land had been at times overflowed by the tide, and the speaker thought his success was due in part to the saline matter in the soil. In the latter part of his life he was somewhat troubled by the black knot. Mr. Muzzey said he had destroyed the curculio by jarring it down upon sheets.

Mr. Hovey said that he was born in Cambridge, and lived about a hundred feet from Mr. Pond, who was a blacksmith. At that time Mr. Pond had no garden. The estate where the speaker lived was purchased by his father in 1799, and the spring tides were kept out of the garden by a dike which was overflowed every fifteen or twenty years, though he could recollect only one overflow. His father had plum trees producing white and blue plums, the fruit of which then brought four or five dollars per bushel. One of his earliest recollections was of climbing one of these trees and picking three bushels of fruit from it. At first there were no curculios, but afterwards the fruit began to drop; the next year it dropped more, and then the black knots appeared and he suggested cutting down the trees. In 1831 or 1832 a very high tide covered the garden six inches in depth, and killed the strawberries. When the sun came out everything was covered with salt. Mr. Pond began his garden after this, but the soil was no more salt marsh than Mr. Hovey's, and salt had nothing to do with Mr. Pond's success in raising plums, but it was rather due to his manuring very highly. Mr. Pond's trees finally suc-

cumbed to the curculio. In 1827, before the curculio appeared, Mr. Hovey received from Prince's nursery the Washington and Imperial Gage plums. He once bought a thousand Canada plum stocks, but found they were more subject to black knots than the ordinary stocks.

Mr. Bates said that his trees were struck with black knots all at once. He planted Green Gage and Lombard plums, and when he discovered curculios in his trees he tried every expedient to save the fruit by frightening them away or other means. He thought that when people apply remedies the curculio is often frightened away by the frequent examinations made as to the effect of the remedy. He placed stakes around a Green Gage tree and fastened a single breadth of mosquito netting to them, and the tree fruited nicely. Before that time his children had hardly seen a plum. Last year his wife pinned a breadth of mosquito netting around the tree and it fruited well again.

Mr. Owen said that he had cultivated a great variety of plums, and had the curculio more or less, but no knots; afterwards the knots set in violently. He cut them out and washed with salt, and concluded that it was a remedy, and wrote a paper on the subject for one of the agricultural meetings at the State House, but afterwards the salt did no good; the knots grew worse and worse, until the trees were destroyed. He thought the knots due to the soil; naturalists say that the fungus grows on the knot. Professor Cleveland, of Bowdoin College, saved his plum crop by removing the earth under the branches to the depth of three or four inches and covering with air-slacked lime. He tried it on one tree, and had no curculios about it, and it bore three bushels of fruit. The Jefferson and Reine Claude de Bavay are two of the best varieties.

Mr. Smith had used whale oil soap in the proportion of five pounds to a gallon of water, for showering his plum trees and shrubs, and had great faith in it as a destroyer of insects.

Mr. Bates said that plums could be protected from the curculio by sprinkling the fruit when damp with air-slacked lime, so thickly as to cover it, and it will not injure the fruit. Some cultivators think a clay soil necessary for plum trees, but he thought some varieties would succeed in a light soil.

Mr. Flint said he had trees of Coe's Golden Drop and other plums, bearing well in a sandy soil; four or five feet down there is blue clay. He has put a peck of wood ashes around each tree and dug it in.

J. W. Manning had seen plums in numerous instances thriving in sandy loam. In his native town of Bedford, New Hampshire, the soil is a rocky yellow loam without clay, but thirty years or more since, twenty-five of the finest varieties were cultivated there, and all bore abundantly until the curculio appeared, which was about 1855. In Chelmsford, the curculio destroyed the plums about 1849 or 1850, so that their cultivation was practically abandoned. In Chelsea, two years ago, he saw Lombard plums from a rocky, gravelly loam, though there might be clay underneath. They were under good cultivation, and the hens picked up the insects under them.

Robert Manning said that the researches of Professor Farlow* had proved conclusively that the black knot is caused by a fungus (*Sphœria morbosa*).

It was announced that the subject for discussion the next week would be, "Which of the new or more recently introduced Hardy Ornamental Trees and Shrubs are worthy of special mention?"

BUSINESS MEETING.

Saturday, February 26, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes in the chair.

The Treasurer stated that it would be necessary to provide a new plate for the Certificates of Merit awarded by the Society. The subject was referred to the Executive Committee with full powers.

Adjourned to Saturday, May 5.

MEETING FOR DISCUSSION.

The President, in behalf of the Committee on Discussions, respectfully requested that exhibitors of fruit, flowers, or vegetables would have their contributions arranged by 11 o'clock, so as not to interrupt the meetings for discussion.

---

* Bulletin of the Bussey Institution, Vol. I, p. 440.

The subject assigned for today was, "Which of the new or more recently introduced Hardy Ornamental Trees, Shrubs, or Plants are worthy of special mention?"

Several members having been called on to name such plants, and having answered that they were unprepared, Hon. Marshall P. Wilder said that he would name one shrub which he considered the most desirable of all—the *Hydrangea paniculata grandiflora*. Though introduced here a quarter of a century ago, its merits have not been recognized until within a few years.

William C. Strong thought it the most showy but not the most beautiful of shrubs. He considered the *Hydrangea paniculata* in some respects preferable to the variety *grandiflora*. The latter is more heavy and coarser than the type, which is of more upright growth, more graceful, and quite as hardy. The *Viburnum plicatum* (which is allied to the snowball) is much more delicate. It is not so common as the *Hydrangea paniculata grandiflora*, for it is more difficult to propagate and does not grow so rapidly.

Mr. Wilder thought the *Viburnum* very beautiful, but not more so than the *Hydrangea*. Many of the plants which we think new have been known a good while but have not become common. This is the case with the *Viburnum plicatum* as well as the *Hydrangea paniculata grandiflora*. The former was figured in the "Flore des Serres" more than thirty years ago. Sometimes varieties of grapes and other fruits as well as flowers are dropped from cultivation, and afterwards come up again and are thought new.

Mr. Strong thought the *Viburnum plicatum* was not introduced into this country thirty years ago, and was not like the *Exochorda grandiflora* which was comparatively rare and has now come up again.

Charles M. Hovey said that he had the *Viburnum plicatum* thirty years ago. He saw it at Mr. Buchanan's grounds at Astoria, Long Island, eighteen years ago. He thought the variety *grandiflora* of *Hydrangea paniculata* did not differ from the type. The subject was discussed in the "Gardeners' Chronicle." The *Hydrangea paniculata* represents all that is grandest in shrubs as the *Exochorda* represent all that is most beautiful. He agreed with Mr. Strong that the *Viburnum* is more beautiful than the *Hydrangea*, but thought the *Exochorda* still more beautiful, and also more difficult to propagate. These three are the most beautiful of the more

recently introduced shrubs. The *Viburnum macrocephalum* resembles *V. plicatum;* the cluster of flowers is larger.

President Hayes agreed with Mr. Wilder (whom he styled the Nestor of the Society) that the *Hydrangea paniculata grandiflora* is superb. He cultivates it in many forms, — large groups, and trained to a single stem. He had taken great pleasure in the exquisite foliage of the Japanese maples,—some of rich scarlet before that of others has appeared. The *Aralia* (*Dimorphanthus*) *Mandshurica*, is a new tree-like shrub with immense clusters of creamy white flowers. The *Polygonum Japonicum* is a new climbing plant with large variegated leaves, which are very ornamental. It grows with great rapidity, propagates easily, and is perfectly hardy, having stood four winters. The *Xanthoceras sorbifolia* is a new and very charming shrub. The last three plants, which were introduced here by the speaker, are yet quite rare. The *Sciadopitys verticillata* or umbrella pine, which some have thought was not hardy, Mr. Hayes had found quite hardy, several plants which were left out during the winter having done better than those sheltered.

Mr. Strong inquired of the President whether he gave special care to shading and watering the Japanese maples. In his observation they had suffered from the hot sun, like the variegated *Negundo*. Of this he saw a specimen at Mr. Hunnewell's as fine as any that he saw in France, but it does not look as well now.

President Hayes replied that his Japanese maples were planted in the shade of pear trees, and had no special watering. In winter he puts a little matting around them. His finest variegated *Negundo* is on a sidehill, and has no protection; in severely hot summer days it burns a little, but on the whole is most satisfactory. Others which stand in bleak places have a little protection, but this will soon be discontinued.

Mr. Strong thought that the President's fine *Negundo* would ultimately fail like the others. Our clear sky and hot sun are too much for its delicate foliage. The plain type is hardy in suitable soils. He thought the Japanese maples would also suffer; under protection they may do, but as a general rule they will disappoint. The *Acer Schweidleri* is very promising; it is a tree of the Norway maple type, of first size, hardy, with foliage of a beautiful pink changing to dark green.

President Hayes agreed with Mr. Strong in regard to *Acer*

Schweidleri. He had had the variegated *Negundo* for eight years, and though he lost most of the first, those which he has now promise to stand. We cannot expect to have everything perfect; we must take some trouble with choice and delicate plants, and it is little to put a mat round a small maple.

Mr. Wilder said he tried the Japanese maples when they were first introduced, and lost every one; he found them very feeble. Mr. Hunnewell's experience has been the same with very few exceptions. The speaker admired the enterprise of President Hayes, but did not think the Japanese maples would ever come into common use. In his observation the variegated *Negundo* had generally failed under our hot sun, and a large tree which he saw in the Parc Monceau, at Paris, has since wilted and withered. He had seen none looking really well except at Mr. Hayes's and Mr. Hunnewell's. He hoped the President would persevere and be successful in getting up the Japanese maples. With some plants the case is exactly opposite that of the Japanese maples; perfectly hardy things are introduced, but not known to be hardy, and are therefore kept in the greenhouse, where they die out. Forty years ago he paid three guineas for a plant of *Andromeda floribunda*, which he kept in the greenhouse, and William E. Carter came over from the Botanic Garden at Cambridge to help nurse it; the price afterwards came down to seven shillings and sixpence, and is now only one and sixpence, and the plant is known to be as hardy as a currant bush.

William Gray, Jr., said that he had made a specialty of the new evergreens, and had found all the *Retinosporas* perfectly hardy. There are many new spruces of medium size—not as large as the Norway and of better habit; they do not get straggling. The *Nordmanniana*, *Menziesii*, and *orientalis* are all very beautiful; the last is the best. Mr. Gray's largest specimen is fifteen feet high. The blue spruces, of which there is a great variety—among them the *Abies Menziesii*, now know as *Picea pungens*—are next in beauty. The Japanese evergreens are all hardy, and are adapted to small places. Mr. Gray's plants were received directly from Japan.

Mr. Strong remarked that *Retinospora squarrosa Veitchii* has the reputation of being more glaucous than the type.

Mr. Hovey was glad to hear Mr. Gray speak so highly of *Abies orientalis*. It is the most refined of all the spruces; *A. Nordmanniana* is more grand, but *A. orientalis* is superior in delicacy.

It is a slow grower, and not so easily transplanted as some species. It is difficult to raise from seed and therefore scarce.

Mr. Hovey quoted from the "Magazine of Horticulture," for 1866 (page 330), his recommendation of the *Viburnum plicatum* as a species that should have a place in every collection of handsome flowering shrubs. He imported from Lemoine, in 1878, a plant of *Xanthoceras sorbifolia*, for which he paid five francs, and also at the same time the Kentucky coffee tree with variegated leaves. The type of the latter (*Gymnocladus Canadensis*) is one of the most remarkable and beautiful trees in winter and summer. In winter its blunt shoots, without spray, are unique, and in summer its twice-pinnated leaves, three feet long, are delicate yet massive. In 1878 the speaker planted seed in a box; in the centre there came up a plant with variegated foliage. Wier's cut-leaved maple is one of the best recent acquisitions. The liquidambar is somewhat tender here; it gets killed back in winter, but gains a foot or more every year. In Connecticut it is entirely uninjured. The star-shaped leaves are very peculiar, and change to a beautiful deep crimson in autumn. The tupelo has foliage as beautiful in summer as that of a camellia, changing in autumn to an intense crimson; no other tree takes so deep a color. The limbs spread horizontally. There is in Cambridge a very fine old tree, from which the speaker has raised seedlings, and a second generation from those. The *Acer Colchicum* is almost as deep colored as the Japanese maples, but had not proved hardy with him; it was killed in the winter of 1861–2. He thought one variegated *Negundo* enough on a place, unless it was desired to have it spotted all over with white, and moreover the foliage is apt to burn. He had a plant of *Sciadopitys verticillata* very early, and had found it perfectly hardy, but a very slow grower, not making more than six inches of wood in a year. The magnolias have been very much neglected; *M. acuminata* is a very fine tree, with beautiful foliage, and perfectly hardy, but difficult to transplant. *M. tripetala* has the ends of the shoots winter-killed, but is nevertheless very desirable. *M. Lennei* is a very fine variety, with large purple flowers, and sufficiently hardy. *M. tripetala* and *M. acuminata* grow freely from seed, while the Chinese species are reputed not to germinate well, but the speaker saw no reason why they should not.

Mr. Strong said that the seeds of *Magnolia Soulangeana* come

up as easily as peas, but no magnolia seed should be allowed to get dry.

Mr. Hovey said that twenty-five or thirty years ago he imported the *Abies Cephalonica* from Waterer and now he has but one tree left; almost all were killed down to the snow line very soon. Twenty-five of them were set in a line, next to a row of *Thuja Sibirica*, and grew up and made a thick hedge, but the sun struck all except one end, where stood the only one now remaining. This has reached the height of twelve feet. It is very remarkable for its stiff, silvery foliage—glossy green on one side and white on the other. This succeeds better in Mr. Hunnewell's ground, where the soil is light and dry. Mr. Hunnewell has also very fair trees of *Cedrus Atlantica*, *C. Deodara*, and others which do not succeed with the speaker.

F. L. Harris, gardener to Mr. Hunnewell, said that at the grounds at Wellesley the variegated *Negundo* had done remarkably well. There are specimens from three to twelve feet high, and they are seldom injured. Some are in the sun, and some in shade; the latter hold their color best. The purple maples are equally hardy; *Acer polymorphum atropurpureum*, one of the Japanese species, retains its color until the first of July, when it turns green. The later growth is like the first, and the contrast with the green is pleasing. He had not much to say in favor of the other Japanese maples with the exception of *A. polymorphum sanguineum*, which, though a vigorous grower, is not so highly colored as *atropurpureum*. The foliage of the fern-leaved varieties crumples up, and they look as if they needed water or some stimulant. He had never succeeded in raising either *Magnolia Soulangeana* or *M. conspicua* from seed.

Mr. Strong remarked that *Acer polymorphum* is the stock on which *atrosanguineum* and other Japanese varieties are grafted. Mr. Harris is sanguine about many trees from which others cannot get the results that he does. The *Acer Colchicum rubrum*, of the Norway type, is perfectly hardy; the speaker has a tree thirty feet high which he transplanted when it was twenty-five feet high. The young leaves are scarlet and become green when older. The purple birch is very valuable; early in the season it is not so deep colored as the purple beech, but later in the season it is darker than the beech, and has a metallic lustre. He sows magnolia seeds as soon as gathered, first rubbing off the outside cuticle. He did

not know that *Magnolia Lennei* has fruited in this country. Mr. Parkman has raised large numbers of seedlings of the Chinese magnolias; the speaker had bought seedlings of him. Mr. Parkman used to get seed from John Kenrick's trees; the seedlings vary a little.

Mr. Wilder said that he had often tried to germinate the seed of Chinese magnolias, but without success; that of the American species grows very readily. No European nurseryman has advertised seedlings of *Magnolia Soulangeana.*

Mr. Strong did not wish to be understood as saying that he had raised *Magnolia Soulangeana* from seed in quantity.

William H. Spooner confirmed Mr. Strong's statements in regard to Mr. Parkman's success in raising Chinese magnolias from seed.

Mr. Hovey spoke of the golden poplar and the golden syringa as very beautiful; the latter is especially golden.

It was voted to continue the discussion of the subject on the next Saturday.

BUSINESS MEETING.

Saturday, March 5, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President John B. Moore in the chair.

The decease of four members of the Society,—E. Fred Washburn, Henry Vandine, Hon. John C. Gray, and George B. Emerson, LL.D.,—was announced and a committee consisting of Hon. Marshall P. Wilder, John C. Hovey, John G. Barker, Charles M. Hovey, and William C. Strong, was appointed to prepare memorial resolutions.

The following named persons, having been recommended by the Executive Committee, were on ballot duly elected members of the Society:

William A. Bock, of North Cambridge.
Georg A. Schmitt, of Boston.
Charles W. Norton, of Allston.
Herbert Merriam, of Weston.
Frederick M. Safford, of Dorchester.
E. Francis Bowditch, of Framingham.

Adjourned to Saturday, March 12.

MEETING FOR DISCUSSION.

The subject of the last discussion, "The Hardy Trees, Shrubs, and Plants, of recent introduction, most worthy of notice," was again taken up, and F. L. Harris, gardener to H. H. Hunnewell, opened the discussion by reading the following paper on the subject:

Mr. President and Ladies and Gentlemen:

I think it quite unnecessary to speak particularly of the older species and varieties of evergreen trees and shrubs, for they have been frequently brought to your notice by many practical cultivators, through whom their adaptability to withstand the severities of our climate has become fully recognized, not only by the members of this Society, but by lovers of horticulture through the length and breadth of the land. It may not be out of place, however, to state a few facts in reference to some of these, because every close observer discovers by years of experience many ways of doing things that may prove novel and interesting. I shall, therefore, touch upon a few that are familiar to you all.

First, then, we have the *Abies Alcoquiana*, *A. polita*, *A. Sitchensis*, and *A. Maximowiczii*. They are comparatively rare here, but they are all very desirable, particularly the last, which is close and compact in habit, with the foliage short and very rigid, and the underside of the leaf quite glaucous.

In regard to the *Abies Douglasii*—one of the most beautiful of all—it has been proved that trees imported from Europe seldom survive our winters, but grown here from Rocky Mountain seeds they prove equally hardy with the Norway spruce. The trees of the latter description at Wellesley are now eighteen feet high. I notice that this species, like all the others, prefers a very deep soil; say three feet in depth to the extent of fourteen or fifteen feet in diameter.

Picea Cephalonica is a tree of great beauty; our specimens are twenty feet high, and for several years we have been in the habit of surface dressing around them with strong manure, and it is perfectly astonishing to see the difference between those thus treated and the little miserable starvelings usually seen. I say then, manure all conifers, and you will be fully repaid in the vigor and healthfulness of your trees. The manuring of evergreens was, twenty years ago, almost unknown, but today I think it is the only road to success.

Picea nobilis is not very generally known, and yet when it becomes so, I think it will be acknowledged that it cannot be excelled in majesty. *Picea Nordmanniana* is a grand tree; in its youth it is difficult to get a leader, and in this case the side branches should be judiciously pruned, which is best done in April and May, as is the pruning of all other conifers or evergreens. *Picea Veitchii* is an elegant tree, a rapid grower, and every way worthy of attention.

I know of no class of evergreens so well calculated to give general satisfaction as the *Retinosporas*. Their peculiar forms and colors, both in summer and winter, afford the greatest pleasure. Many of the varieties are dwarf in habit, while others grow from twenty-five to thirty feet high. *Retinospora plumosa*, *R. plumosa aurea*, *R. squarrosa*, *R. obtusa*, and *R. filifera*, are among the most valuable. *R. plumosa aurea*, is, above all others, one of the most desirable, it yields so readily to the pruning shears. For topiary work it is unequalled, and particularly for edgings to beds, or it may be planted in masses and cut into any form chosen. Ribbons may be made of any desirable length, composed as follows,—the first row next the grass, *Euonymus radicans variegata;* second row, *Retinospora decussata;* third row, *R. plumosa aurea;* fourth row, *R. squarrosa*.

Retinospora filifera aurea will probably become the most beautiful of all, appearing in the distance like a fountain of yellow interspersed with green. It is perfectly hardy, as are also *R. obtusa Keteleeri* (handsome), *R. filicoides*, *R. lycopodioides* (singular), *R. gracilis*, *R. obtusa variegata* (a low grower), *R. obtusa pendula* (very pretty), and *R. decussata*, which is remarkably glaucous in summer and dark brown in winter, and of erect growth.

Thuiopsis Standishi is the most hardy of its genus, and a very desirable evergreen. *T. dolabrata* and *T. dolabrata variegata*, delight in shady nooks, yet not immediately under the foliage of other trees. In the sun they will brown, especially the *variegata*. *T. lætevirens*, is dwarf and very pretty.

Taxus adpressa, I have found to be the hardiest of all the yews. The foliage is small and dark green, and the habit of the plant spreading.

Of the *Thujas*, or arbor-vitæs, *T. gigantea* is quite hardy, and destined to be one of the really ornamental trees. *T. occidentalis Vervaeneana* is quite distinct; it has beautiful yellow foliage. It

surpasses the George Peabody; perhaps, indeed, it is the most beautiful of all. As Thuja Queen Victoria grows older and more dense, the peculiar silver points at the ends of the growth become brighter. It is quite a desirable variety.

Juniperus communis var. *Cracovia*, I think is not generally known; it is certainly much more hardy than either the Swedish or Irish species. *J. Virginiana Burkei* is one of the best of all; its narrow, erect, almost columnar, mode of growth gives it an attractive and unique appearance. It resembles *J. Virginiana glauca*, and is perfectly hardy. A golden variety of juniper—a creeping form of *J. prostrata*, from Mr. Douglas—is a rapid, spreading grower, and maintains its rich, golden tint through the summer, looking in autumn like a mass of bronze, and showing the same today through the snow. It may be used as a margin, or edging, to clumps of rhododendrons. *Juniperus Youngi aurea*, is beautiful and hardy.

To come to deciduous trees, I should like to know why it is that Young's weeping birch, when grown as a standard in this country, appears so unlike those received from England. All those I have seen worked here at a height of from six to eight feet, droop immediately, whereas those from Europe, grafted low down, go away rapidly with a bold leader, with the laterals weeping close to the stem of the tree. I prefer the latter.

Robinia Pseudacacia Bessoniana, when better known, I think will be highly esteemed, for I know of no tree equal to it for rapidity of growth. Its foliage is dense, and its flowers are produced in profusion, and are very ornamental. I am not sure but it may be planted extensively in this country for timber, provided its wood proves as durable as the common locust. I hope some of our friends, who have the means and land, will plant it so extensively as to test its merits in this respect.

One more and I have done. The *Hydrangea paniculata grandiflora* is so well known, that it would appear as though nothing more could be said in its favor; yet, it seems to me that if some of our nurserymen were to train plants as standards, say from six to eight feet high, we should regard them with still more favor. At that elevation, its immense panicles, almost touching the ground, would not require the least support, whereas, when grown as it usually is, it requires a number of stakes to support it, especially after a drenching rain. We have one at Wellesley, with a stem

seven feet high and a head five feet across. I hope some of our nurserymen will take the hint and act accordingly, for I am satisfied that when grown in this way it is far preferable to any other form. To prune this shrub, cut back all the previous year's wood to two eyes from the old wood.

Discussion.

Jackson Dawson said there are two varieties of *Hydrangea paniculata grandiflora*, one of which resembles *H. arborescens.*

Charles M. Hovey said that the date of introduction of every fruit, flower, and shrub is recorded in the "Magazine of Horticulture." The *Viburnum plicatum* was introduced in 1848; *Exochorda grandiflora* in 1859, and *Hydrangea paniculata grandiflora*, in 1868, or earlier, and now it is talked of as new. He first got it under the name of *Hydrangea deutziflora.*

William C. Strong said that the habit of growth of *Hydrangea paniculata* (the type) is more upright than that of the variety *grandiflora.*

Mr. Dawson said there is the same distinction between *Hydrangea paniculata* and the variety *grandiflora* as between *Viburnum Opulus* and the variety *sterilis.*

Mr. Hovey spoke of the *Prunus triloba* as a most beautiful shrub, with wreaths of rosy pink blossoms, and of the *Spiræa prunifolia* as most desirable for the beautiful color of its foliage in autumn—amber and gold. *Viburnum macrocephalum* is good. He imported *Negundo aceroides variegata* in pots in 1859, and *Magnolia Lennei* from Van Houtte in 1856.

Mr. Harris remarked that nothing is more ornamental in the conservatory than *Negundo aceroides variegata.*

Mr. Hovey said that *Forsythia suspensa* flowers before almost anything else. It may easily be trained as a standard, in which form it is very beautiful, with its drooping branches and clear yellow flowers. *Pavia macrostachya* (the dwarf horse-chestnut) is most beautiful and massive. He has a tree forming a mass twenty feet in diameter. *Spiræa Thunbergii* is a very desirable species. The Messrs. Veitch used it for edgings to beds in their camellia house. *Pyrus Maulei* has fruit even more ornamental than the flowers; the former are about the size of a Coe's Golden Drop plum. *Daphne Cneorum* blooms the whole summer through and the pink flowers are very fragrant. *Philadelphus thyrsiflorus* is a

most showy plant; he has a specimen eighteen feet high which has borne ten thousand flowers; shoots seven feet long were covered with them, and the individual flowers are larger than those of *P. grandiflora*. The *Salix Napoleona* is nothing but the old weeping willow, *Salix Babylonica*.

Mr. Dawson said that *Salix Japonica pendula*, from Japan, has narrower leaves than the common weeping willow, and makes a growth eight or nine feet long in a season, and seems to be a very desirable variety. He went on to speak of a large number of shrubs now cultivated at the Arnold Arboretum (where he is gardener), which have either proved, or promise to be, desirable for general cultivation. Some, which are new to us, may be old plants that have been neglected and laid aside and are now reintroduced. Some may not prove hardy, and some may need slight protection.

Xanthoceras sorbifolia has proved perfectly hardy, and is very beautiful, bearing a profusion of white flowers with pink centres.

Malus Toringo (*baccata*) grows from ten to twelve feet high and is covered with semi-double pink flowers. *Malus floribunda* is perfectly hardy, and bears full of rosy pink flowers. At the Arboretum there are three varieties of *Malus spectabilis*,—the double white, double pink and single white. They can be kept down to three feet in height, by pruning.

Staphylea Bumalda is not hardy when young, but in two or three years it becomes capable of resisting the cold. The flowers are almost pure white, and would be fine for forcing. It is from North China and Japan. *Staphylea Colchica* and *S.* pinnata are hardy.

Deutzia parviflora is more like a *Spiræa* than a *Deutzia*, and is one of the finest new species, as is also the true *Deutzia scabra*—not the old variety under that name, which is a rough-leaved form of *D. crenata*. The new one was brought from Japan by Thomas Hogg, and the speaker had it on the authority of Samuel B. Parsons. If not the true *Deutzia scabra*, it is the exact counterpart of Siebold's plate of that species.*

Mr. Hovey said that if the *Deutzia scabra* mentioned by Mr. Dawson is new, it is different from that described by Loudon,

* Mr. Dawson states that he was informed by Mr Hogg, who introduced the true *Deutzia scabra*, that in Japan it rarely grows above two feet in height and is entirely distinct from all other species, both in flower and habit.

Don, and others. The leaf of the kind commonly cultivated under that name is rough.

Mr. Dawson said the leaf of the true *Deutzia scabra* is rounder than that of the one commonly cultivated under that name. The bark peels off from all the species as the plants become old. He then resumed his remarks on shrubs at the Arnold Arboretum.

Cytisus nigricans has the cluster of pale yellow flowers upright instead of drooping, and is perfectly hardy.

Lonicera hispida, from St. Petersburg, is also perfectly hardy; it trails like *Arctostaphylos Uva-ursi*, and is well adapted to rock-work. *Lonicera Maximowiczii* is a very rare upright honeysuckle, perfectly hardy, and one of the most desirable late introductions.

Actinidia polygama is a beautiful climber, and said to produce a delicious fruit.

Philadelphus coronarius var. *Schrenkii*, is of very dwarf habit, and flowers very early—a week or ten days before any other species. *P. coronarius* var. *tomentosa*, promises well. *P. hirsutus* is softer and more delicate—one of the prettiest of all.

Rosa rugosa and the variety *alba* or *Regeliana* are desirable.

Mr. Harris thought *Rosa Regeliana* distinct from *R. rugosa;* the flowers of the former are four inches in diameter, and the fruit covers the plant in autumn.

Mr. Hovey remarked that *Rosa tacoum* is slug proof.

Mr. Dawson still thought *Rosa Regeliana* but a variety of *R. rugosa*. He said that *Rosa rubrifolia* has very fine purple foliage, which it holds through the hottest weather, and Mr. Harris agreed with him.

Rubus villosus semi-pleno is a very fine double-flowered variety of the common high-bush blackberry, and desirable as adding another variety to a garden where there is sufficient room.

Tamarix Sinensis is an old plant; it is more hardy than any other of the genus, and is worthy of cultivation for its delicate foliage and flowers—the latter appear a month or two months later than those of any other species.

Styrax Japonica is perfectly hardy in dry soils. It has white flowers very similar to those of *S. Americana*, but perhaps a little larger. The latter is a very pretty shrub, from four to six feet in height, which ought to be in every collection; the flowers resemble those of the *Halesia* or silver bell.

Viburnum macrocephalum is also hardy.

Dolichos Japonicus is new, and a most rapid climber, having grown forty feet in one year.

Hypericum prolificum; H. aureum, from the Missouri river, and *H. Kalmianum*—the last an old sort but not much cultivated, beginning to flower nearly a month earlier and holding on a month later than *H. prolificum*, are all desirable.

Mr. Hovey said that E. L. Beard has a fine plant of *Hypericum patulum*, which has stood out-doors three years.

Mr. Dawson said that *Hypericum patulum* was always cut to the ground with him, but came up sufficiently to flower. Hardiness depends greatly on treatment. Plants of doubtful hardiness should have a good, well-drained soil, and a chance to ripen up their wood. Mr. Harris agreed with this.

Mr. Hovey said that his soil has a clay bottom and is unfavorable to plants whose hardiness is doubtful. Anything that will stand on his grounds will stand anywhere in the United States. The Bussey Arboretum and Mr. Beard's garden are on elevated, gravelly soil.

Mr. Dawson said that *Berberis Sinensis* is perfectly hardy, grows two to three feet high, and is of drooping habit. When full of ripe fruit (which is less acid and "peggy" than that of the common barberry) it looks like a fountain of scarlet. *Berberis Thunbergii* has fine autumn foliage, and, when the fruit, which is of a deep, rich, scarlet color, is ripe, forms a perfect picture. It is a low-growing shrub.

Desmodium pendulœflorum, *D. pendulœflorum album*, and *D. Canadensis* are hardy on dry soils. All are suffruticose rather than shrubby. The first two are especially valuable on account of blooming late in autumn, when there are but few flowers. The flowers of the first are purple, and all are pea-shaped.

Cerasus Japonica flore pleno is more double and whiter than the old double flowering cherry, and blooms later.

Prunus Sibirica is a very desirable variety, flowering early in spring. *Prunus Myrobalana* is one of the earliest trees to flower in the spring.

Mr. Hovey remarked that the last-named tree grows very rapidly, and the wood, when burnt, perfumes the room.

Mr. Dawson added that the Germans grow it for "zwetschenwasser."

Clematis Davidiana and *C. tubulosa* are erect growing species, from two to four feet high, and in midsummer are covered with

beautiful blue flowers like panicles of hyacinths. Unfortunately they do not seed freely and are rather difficult to propagate. *C. Davidiana* is the more desirable of the two. *Clematis graveolens* (*orientalis*) is perfectly hardy and a very rapid growing climber; it has yellow flowers. *C. coccinea* is the prettiest of all the hardy species; the flowers are brilliant crimson. It is a climber from Northern Texas; not hard-wooded, but dies to the ground.

Leiophyllum buxifolium has stood in the Botanic Garden at Cambridge for twelve years. It is a small evergreen shrub, growing about a foot high. A larger form, from the mountains of North Carolina, has a larger leaf of a more waxen appearanee.

Spiræa confusa var. *mollis*, is one of the earliest and prettiest. *S. lævigata* is a curious species from Siberia; the flowers are not of much account, but the foliage is beautiful. *S. Lenneana*, from St. Petersburg, has bright, rosy pink flowers. *S. Tobolski* resembles *S. sorbifolia*, but flowers three weeks later, and is perfectly hardy.

Nelia (*Spiræa*) *Amurensis* is similar to *Nelia Opulifolia*, but the corymbs are much larger, and about two weeks earlier in blooming.

Jamesia Americana resembles *Spiræa Reevesiana;* it grows two feet high. It is from the Rocky Mountains.

Neviusia Alabamensis belongs to the rose family; it has numerous bunches of pure white flowers, and is quite showy. Though from Alabama, it is perfectly hardy.

Aralia pentaphylla is perfectly hardy and desirable for the beauty of its foliage, which is of a bright glossy green.

Erica vagans, *E. vagans rubra*, *E. carnea*, and *Calluna vulgaris* all do well on thoroughly drained land with a slight covering; if the snow blows off and leaves them bare, they burn.

Andromeda polifolia is a native species, which under cultivation becomes one of the gems of the garden. The foliage is of a glaucous color. It is perfectly hardy. *Andromeda Catesbœi* is of rapid growth and easily propagated. When planted with rhododendrons, nothing is more beautiful, and with the protection which they afford it is perfectly hardy; if not sheltered the ends of the shoots are sometimes injured. *Andromeda floribunda* is the finest of all. *Andromeda Japonica* is perfectly hardy. It has been cultivated by Mr. Parkman for ten years, and he has never covered it. It wants to bloom too early in the spring, but five years out of six it will be good. Mr. Dawson exhibited a small plant in

bloom which he took from a cold frame and placed in heat only ten days before.

Cassandra calyculata, a native of Massachusetts, is very beautiful under cultivation. The speaker expressed the opinion that if all the beautiful shrubs of our State were gathered together there would be a sufficient variety to form a most beautiful garden.

Mr. Hovey mentioned the *Clethra alnifolia*, found abundantly in this vicinity, as one of the most beautiful shrubs.

Mr. Dawson added that one of our native trees, a variety of *Pinus strobus*, is destined to take a place among the finest pines. The original tree is fifty feet high, with a head from twenty to twenty-five feet through, and as round as if it had been clipped. Seedlings from it have the same habit. It is in the town of Dracut, but the exact locality has been kept secret.

Mr. Harris said that the variegated *Pinus Massoniana* is the finest of all variegated evergreens. The best specimen in this country is at Wellesley.

Benjamin G. Smith said that he was much pleased to hear Mr. Dawson speak in praise of native shrubs. The late Joseph Breck pronounced the *Kalmia latifolia* the finest of all shrubs. In the experience of the speaker the *Andromeda floribunda* has proved a brave shrub, well furnished with flowers, and as hardy as an oak.

Mr. Hovey said that between 1790 and 1800, Lyon and Fraser carried from this country to England nine hundred varieties of trees and shrubs, the sale of which at auction occupied several days. On their second visit they carried home three hundred or four hundred varieties.

Mr. Lewis said that the great trouble with cultivators is to know what is hardy. Many things would be hardy at Wellesley that are not hardy on Mr. Hovey's grounds. Mr. Dawson hit the nail on the head when he said that shrubs should have a thoroughly drained soil, and that the wood must be well ripened to stand the winter.

It was voted that a committee of five be appointed by the Chair to prepare a list of the best twenty deciduous shrubs, the best twenty deciduous trees, and the best twenty conifers, and report at a future meeting. Henry Winthrop Sargent, H. H. Hunnewell, William C. Strong, William Gray, Jr., and Charles S. Sargent were appointed as that committee.

Benjamin G. Smith, Chairman of the Committee on Publication and Discussion, announced that the subject for the next week would be "Vegetables and their Culture."

BUSINESS MEETING.

SATURDAY, March 12, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President John B. Moore in the chair. No business being brought before the meeting it

Adjourned to Saturday, March 19.

MEETING FOR DISCUSSION.

The subject assigned for today was "Vegetables and their Culture" and the Chairman called on Benjamin G. Smith to give his method of cultivating the Lima bean.

Mr. Smith said that having been quite successful in the cultivation of this vegetable he had been frequently asked for his method. He sows the seed about the middle of April (being careful to place the eye down), in what are known as "cucumber boxes," filled with loam, five seeds in each. The boxes are without bottoms, six inches in height, seven inches square at the top and eight inches square at the lower part, and are made of half-inch stuff. They cost six dollars and a half per hundred, and his have already been in use ten years. He was first to use them to forward Lima beans, and finds them invaluable for this purpose. When the beans are planted the boxes are placed in the cold grapery. When the plants are about two feet high the ground is prepared and the poles are set out, and a hole large enough to receive the box is made at the foot of each. A box is then lifted on a shovel and placed in the hole and the shovel withdrawn. The box is then removed by lifting up; the object of making the top an inch smaller than the bottom being to permit this. It is not advisable to set out the young plants before the first of June, but this is as early as the seed can be planted out-doors, and by forwarding in this way five weeks can be gained, and the beans can be had fresh from the garden from the middle of August to the middle of October. The

Lima bean is a tropical plant and requires a long season. Any surplus can be dried for winter use, and when soaked can hardly be distinguished from fresh beans. In saving seed the earliest beans should be carefully selected.

Hon. Marshall P. Wilder said that all who have visited the markets in Philadelphia must have noticed that no vegetable is so popular there as Lima beans. Through the winter they are soaked over night and sold ready to cook. He agreed with Mr. Smith in regard to their value for winter use, and said that he had still a barrel on hand in the pod.

E. W. Wood said that lettuce is forced very extensively in the vicinity of Boston, and three quarters of the crop is sent to New York, and the same with roses. They both bring a higher price than those grown there. It is certainly very remarkable that coal should be brought here from Pennsylvania to force vegetables, and the product sent to New York. Some time ago, several New York rose growers visited Boston, and spent two or three weeks in examining the method of culture, and took back some of the most skilful gardeners, but they were no more successful at New York than others, and all have returned. "Boston Roses" are advertised in all the florists' stores there, and it is the same with lettuce and cucumbers as with roses. The New Yorkers will pay a higher price for forced vegetables than Bostonians; when forced cucumbers first appear they bring six dollars per dozen, but few are sold in Boston until they get down to ten dollars per hundred, when they are preferred to the Southern product at two dollars per hundred. Many lettuce growers have substituted houses for hotbeds, but though there is no difficulty in growing lettuce in them until heading commences, at that time the top of the head is apt to slough off, or "burn" as it is called. The same trouble occurs in hotbeds to a less extent. It is not burning; the sun strikes the glass too obliquely in January. It is most frequent in cloudy weather, and especially after several successive days of such weather. Sometimes the greater part of the crop has to be thrown away, and growers would be very glad to know the reason of the trouble. The White Seeded Tennisball is best for forcing, and the Black Seeded Tennisball for out-door culture.

William C. Strong thought that we have a brighter sun and a clearer atmosphere than at New York, and that the greater success in forcing flowers and vegetables here might be partly due to that

cause. The color of Bon Silene rosebuds grown here is brighter than that of those grown at New York. It has been supposed by some that the variety is different, but this is not correct. He thought the sloughing of lettuce is caused by dampness and the houses not facing due south. His own houses have this aspect, and he thought that if Mr. Wood's had had the same there would have been less of sloughing off in his lettuce. Unless a house faces the sun the frames do not receive the direct impact of the sun's rays, and are hard to dry off in dull weather.

The Chairman said he had forced lettuce in hotbeds for two or three years, and had had little trouble from rot, but did not like the price it brought. He thought the rot was caused by dampness, for he found most of it under the sash. He had not grown lettuce in a house. He begins in fall and transplants twice; the first time the seedlings are set three inches apart. Lettuce must have plenty of air and be grown slowly. At a low temperature there is not so much trouble with the aphis as at a high degree. It is very hard to get rid of when on the under side of the leaf. Smoking will not do it. Some cultivators grow lettuce to half size in houses, and finish in hotbeds.

Horse dung brought by railroad is not equal to fresh for making heat. The box used by Mr. Smith for transplanting Lima beans is equally good for cucumbers — indeed they are called "cucumber boxes." There is no difficulty in removing tomatoes. When it can be done, it is best to transplant them twice—the second time into eight inch pots—and give plenty of air. Then, when placed in the open ground they are fine, stocky plants, in bloom, and go right along; but this is too much work for market gardeners.

Mr. Wood said that William D. Philbrick has a lettuce house two hundred feet by twenty-six, facing south, and has just as much trouble with the rot as in houses running north and south. Mr. Wood had seen no aphis in his house for three years, and thought that if houses are well aired, and fumigated once a week, there would be little trouble from it. It is a hard-shelled insect, and difficult to get rid of when grown.

Mr. Strong said that Mr. Philbrick's houses are very wide and flat-roofed, and that it is impossible to give air and dry them off thoroughly.

William H. Hunt thought that one great advantage of living in the country is to have fresh vegetables, but it is not appreciated

here as it is in France, where they hardly ever fail to have some green salad every day in the year. It is very healthy, yet few families have it, but he had endeavored to. People in the country should take more pains to have a variety of vegetables, especially fresh ones.

Leander Wetherell regarded the subject under discussion as of the highest importance. Quality should be considered before quantity. He related an anecdote of an English root grower, who, when a farmer brought him an enormous mangel-wurzel, said it was a very good way to raise wood. Such overgrown beets and turnips are coarse, and crops when the quantity is less to the acre possess more feeding properties, as has been proved by chemical analysis. It is the same with the sugar beet, whether grown for food or for sugar. The most profitable potato and the one that sells best is the Early Rose. The market price last year and this was from five to ten cents per bushel higher than that of any other variety. The Snowflake is better for baking, but not so good for boiling, and is not so productive. The best quality is always in demand. The Early Rose grown in Canada is not as good as when grown here, but those raised at Houlton, Maine, are better than ours. This variety is often grown too large, when it becomes coarse. Quality is not enough studied by vegetable growers.

Mr. Wilder said that the Early Rose is the only potato used in his family. It is both early and late. There may be others as good.

Mr. Wetherell said that Bresee's Prolific is of better quality than the Peerless, but not so productive. The Prolific grown at Houlton is better than anywhere else. The Early Rose is the most productive of all.

The Chairman had found the Early Vermont more prolific than the Early Rose, and it is said to be fifteen minutes earlier. It is a seedling from the Early Rose, and he prefers it to its parent because the vine is stronger. For market he wants the largest potatoes he can get, because they bring more; but for his own eating he chooses those of medium size. The Snowflake, and some others, are of better quality than the Early Rose. In June, he prefers the Mammoth Pearl, a variety which originated in Ohio; it is very productive, has remarkable keeping qualities, and is very white when cooked. Vegetables are of better quality for having good culture and growing rapidly. There is no difficulty in grow-

ing good potatoes. He grows fewer small potatoes than his neighbors; they are worth little more than the cost of picking up. If whole potatoes are planted they produce too many vines, and there will be many small potatoes, and only one or two strong, vigorous ones. He cuts up good, strong potatoes into pieces with two eyes each. He has seen splendid crops from small potatoes, but on general principles would not recommend planting them. Potatoes are smoother for not overseeding.

Mr. Wetherell said that his brother planted one-half a field with medium sized potatoes, and the other half with small ones; the yield of the former was more than double that of the latter.

William C. Strong spoke of B. K. Bliss's experiments in producing a stock of the Early Vermont potato from green cuttings, and said that the tubers produced were as large as those grown in any other way. The cuttings are made like verbena or fuchsia cuttings. It is the same with the Early Rose; under the same culture the tubers are as large, and the quality as good, as when grown from tubers.

John Fillebrown was called on as a skilled market gardener. He thought the Hill's Early, an Arlington variety, the best early pea; it yields well. It is difficult to tell how to grow sweet melons. If too much rain comes on them when they are two-thirds grown, the whole crop is destroyed. Last year the aphis came on them in such myriads that it was useless to attempt to keep them under.

Mr. Wilder said he had tried all the new kinds of peas, but did not get much ahead of the Champion of England in quality. The Dan O'Rourke and Landreth's Early are very much alike. He thought the Dan O'Rourke, McLean's Advancer, and Champion of England a good selection for early, medium, and late.

The Chairman said that he cared only for the wrinkled varieties of peas; the quality of the early, round, yellow peas is so inferior that he does not plant them. McLean's Advancer is second early and of fine quality. The Champion of England makes too much vine; there are others of as good quality that do not grow so high. The tall ones rot.

Charles E. Grant approved the McLean's Advancer for medium season, and the Champion of England for late. The very early kinds, like Dan O'Rourke, Caractacus, Hill's Early, and Philadelphia Extra Early, are all substantially alike.

Aaron D. Capen said that he bought of Daniel T. Curtis two quarts of seed peas; the fourth picking of the product sold for two dollars per box, and the gross proceeds of the crop were between twenty-four and twenty-five dollars. The variety was the Early Kent. Twenty-five years ago he was advised to cut off the seed end of potatoes and feed to the cows, and plant the other end, and he had found that by following this advice and cutting the potato so as to have only one or two eyes on a piece, his crop was more uniform in size and of better quality, and he was not troubled with so many little sprouts and small potatoes.

The Chairman said that many experiments had been tried in planting the seed end, middle, and base of the potato, and sometimes one plan had succeeded best and sometimes another.

Mr. Wood expressed the opinion that the Early Rose and Early Vermont potatoes are the same; he bought seed of both kinds of Mr. Moore, and took pains in planting both in the same field to keep them distinct, but could see no difference in foliage, strength, yield, size, or eating quality.

The Chairman said there is little difference in the height of the tops, but quite a difference in productiveness. He cannot tell them apart in the barrel, and the quality is the same. There are more Early Vermont potatoes sold in Boston market for Early Rose, than there are of the true variety.

Mr. Wood asked if the old potato did not afford nourishment to the young plant, which a mere sprout did not receive. He thought the fact that a sprout attached to an old potato can be transplanted without wilting, while a detached sprout cannot, showed that the old potato does afford nourishment.

The Chairman said that he had grown many potatoes from cuttings, and thought Mr. Strong was correct in the opinion that they produce as good tubers as pieces of potatoes. As to nourishing the plant, the old potato is frequently found whole in autumn; the young eye soon throws out a whole system of roots, and as soon as these get at work, the old potato is of little consequence.

Mr. Wetherell said that the farmer who plants potatoes whole is most certain of good crops.

The Chairman said that he had been growing potatoes all his life, and would not let a man plant whole potatoes on his ground if he would give him the seed. He would have two eyes on a piece, but no doubt experiments can be quoted in favor of both ways.

Mr. Wetherell said that he had a good farm and would not allow a man to cut a potato to plant. These discordant opinions can only arise from our failure to take note of all the conditions under which our crops grow.

Mr. Capen agreed with Mr. Moore in regard to cutting potatoes, but preferred only a single eye on each piece. Some break off the sprout when an inch long, and repeat this process four or five times and then after planting the sprouts they plant the potato. Two men may plant alongside of each other and get very different results, and in 1881 you may get very different results from those produced in 1880 by the same method.

Mr. Hunt agreed with Mr. Moore in regard to cutting potatoes rather than planting whole, and thought the former was the general practice. He thought that the young sprout gets a certain amount of nourishment from the piece of potato to start it. In his experience the Beauty of Hebron is more productive and of better quality than the Early Rose.

Rev. F. L. Capen said he had found that the first blossom on a shoot of a tomato plant fails to produce fruit, and he had pinched off the ends of the shoots to cause them to develop, and had succeeded. He asked if any one had propagated from seed of the fruit from the first blossom.

The Chairman said that the first blossoms often set fruit.

Rev. Mr. Capen thought that tomatoes are generally planted too near together—about three feet—they should be five or six feet apart. He thought it would pay to train them on a cheap trellis.

The Chairman said that training and pinching tomatoes would do for amateurs, but not for market gardeners. All the money the latter make on tomatoes is in the first three weeks, and they would have no use for trellises. The Acme took the first prize last year, and it is productive and of fine quality, but it is not so early by five or ten days as some other varieties.

Mr. Wilder said that the Paragon is as good as the Acme. Mr. Livingston, who originated the Acme, says that the Livingston's Perfection is superior to the Acme. These improved tomatoes are as rich in their way as a fine peach in its way, and only want a little sugar added to them. The speaker thought that the tomato had been brought to perfection, and that it is a matter for rejoicing that any vegetable can be improved to so high a point. For home cultivation tomatoes are greatly improved by training; he

planted them against vacant spaces on his grape trellis, and they grew six or eight feet high and produced four times as much as those trailing on the ground.

Mr. Grant said that he invariably trains his tomatoes to an open fence, trellises, or brush, and the fruit keeps sound and perfect longer than when lying on the ground. He deems a trellis of some kind indispensable.

George W. Humphrey said that he set twenty-seven plants against a slatted fence, and though he cut off the ends of the shoots beyond the blossom, to throw all the sap into the fruit, they reached the top of the fence, which was six feet high, and would have gone further but were not allowed to. They were watered with guano water and produced most abundantly.

The Chairman said that he had been requested to speak of his success in raising plums. He thought the time had come when there should be no difficulty in raising this fruit. He felt the want of such plums as he had when a boy, and he got thirty trees from Ellwanger & Barry to see whether he could beat the curculio. He planted them in his hen yard and trimmed them up so that the hens should not fly up into them, and they have borne considerable fruit for the last two years, and there has not been a curculio mark to be seen on it. The trees get manure enough from the droppings of the hens. Four trees outside had the fruit marked with the curculio, but he dug out the eggs with the point of his knife, and they matured good crops. The only trouble in raising plums, besides the curculio, is the black knot, and he had had only two or three of these, which came out on the trunks of the trees. He cut them out to clean, sound wood, removing all that had a diseased, granulated appearance. It is said that the spores of the fungus which causes the knot, mature after the knots are cut out, and to avoid the risk of their propagating, he put all that he cut out into the stove. The wild plum and cherry trees on which the knot is also found, should be cut down and burned. He shortened the long, vigorous shoots two-thirds, so as to make broad, spreading trees, rather than tall ones, and the result is some very vigorous and pretty trees. In jarring trees to shake down the curculio there is danger of starting the bark, but the hens lay eggs, raise chickens, and take care of the curculio. He was surprised to hear an old horticulturist like Mr. Hovey, maintain that the black wart is caused by the curculio. Some of the best plums are the Green

Gage, Washington, Jefferson, Smith's Orleans, Pond's Seedling, Bradshaw, Lawrence's Favorite, Imperial Gage, and Coe's Golden Drop. He planted his trees about twelve feet apart. Cutting back has a tendency to produce a good deal of small wood. He saw no reason why he and all others should not raise plums.

Mr. Smith said that he had six plum trees which he got from Ellwanger & Barry. These gentlemen exhibited at the Mississippi Valley Horticultural Society's Exhibition at St. Louis, last year, fifty varieties of plums, and at the Centennial Exposition in Philadelphia, more than all others except Canadian growers. We have been told that it is of no use to try to raise plums, but if Ellwanger & Barry can do it, others can.

The Secretary announced that Charles S. Sargent had declined serving on the Committee to prepare a list of trees and shrubs, and John Robinson was appointed in his place. Jackson Dawson was added to the Committee.

BUSINESS MEETING.

SATURDAY, March 19, 1881.

An adjourned meeting of the Society was holden today at 11 o'clock, Vice-President Benjamin G. Smith in the chair.

A package of seeds from J. L. L. F. Warren, of San Francisco, Cal., was received, and the thanks of the Society were voted to Col. Warren therefor. The seeds were placed in the hands of the Committee on Plants and Flowers, for distribution among the members.

Adjourned to Saturday, March 26.

MEETING FOR DISCUSSION.

The committee appointed at the meeting on the fifteenth of January, to prepare a list of the forty-eight most desirable Hybrid Perpetual Roses, reported the following which was accepted:

WHITE.

Mlle. Bonnaire, ...	*Pernet*, ...	1859.
Baronne de Maynard, ...	*Lacharme*, ...	1865.

BLUSH.

Mme. la Baronne de Rothschild,	*Pernet*	1867.
La France,	*Guillot, fils*,	1867.

PINK.

John Hopper,	*Ward*,	1862.
François Michelon,	*Levet*,	1871.
Marguerite de St. Amand,	*Sansal*,	1864.
Marquise de Castellane,	*Pernet*,	1869.
Mme. Georges Schwartz,	*Schwartz*,	1871.
Mme. Nachury,	*Damaizin*,	1873.
Comtesse C. de Chabrillant,	*Marest*,	1859.

ROSE-SALMON.

Marie Finger,		1874.
Mlle. Eugénie Verdier,	*Guillot, fils*,	1869.

ROSE.

Victor Verdier,	*Lacharme*,	1859.
Mme. G. Luizet,	*Liabaud*,	1877.
Magna Charta,	*W. Paul & Son*,	1877.
Marchioness of Exeter,	*Laxton — Paul & Son*,	1877.
Édouard Morren,	*Granger*,	1868.
Dupuy Jamain,	*Jamain*,	1868.
Mme. Thérèse Levet,	*Levet*,	1866.

LIGHT CARMINE RED.

Étienne Levet,	*Levet*,	1871.

RED.

Alfred Colomb,	*Lacharme*,	1865.
Charles Lefebvre,	*Lacharme*,	1861.
Marie Beauman,	*Beauman*,	1863.
Mme. V. Verdier,	*E. Verdier*,	1863.
Horace Vernet,	*Guillot, fils*,	1866.
Dr. Andry,	*E. Verdier*,	1864.
Exposition de Brie,	*Granger*,	1865.
Mons. E. Y. Teas,	*E. Verdier, fils*,	1874.
Comtesse d'Oxford,	*Guillot, père*,	1869.
Mrs. Laxton,	*Laxton — Paul & Son*,	1878.
Duchesse de Caylus,	*C. Verdier*,	1864.
Sir Garnet Wolseley,	*Cranston*,	1875.

Sénateur Vaïsse,	*Guilliot, père*,	1859.
Duke of Edinburgh,	*Paul & Son*,	1868.
Ferdinand de Lesseps,	*E. Verdier*,	1869.
President Thiers,	*Lacharme*,	1871.
Richard Wallace,	*Leveque*,	1871.
Thomas Mills,	*E. Verdier*,	1873.

CRIMSON.

Louis Van Houtte,	*Lacharme*,	1869.
Mons. Boncenne,	*Liabaud*,	1864.
Abel Carrière,	*E. Verdier*,	1875.
Xavier Olibo,	*Lacharme*,	1864.
La Rosière,	*Damaizin*,	1874.
Pierre Notting,	*Portemer*,	1863.
Fisher Holmes,	*E. Verdier*,	1865.
Prince Camille de Rohan,	*E. Verdier*,	1861.
Olivier Delhomme,	*V. Verdier*,	1861.

WILLIAM GRAY, Jr.,
Chairman.

No subject having been assigned for discussion, that of last week, "Vegetables and their Culture," was again taken up.

Aaron D. Capen expressed surprise that the plan of planting potatoes whole should have found an advocate on the previous Saturday. He had for many years rejected the seed end for planting and never failed of success. It has many small, weak eyes, which produce shoots corresponding in number and character. He agreed with a speaker at the last meeting, that the best potatoes for exhibition are found in hills having but a single stalk, showing the advantages of light seeding. He prepares pieces with but a single eye on each.

John S. Martin had planted potatoes in all ways—large and small, whole and cut, and had never found any difference.

J. W. Talbot said that a neighbor of his received a letter offering to send directions for increasing the crop of potatoes twenty per cent., for one dollar, to be paid in case the plan proved successful. The method was to take a well ripened potato of any size, and cut out all the eyes but two, and let the cut surfaces dry a week or two before planting. It proved so successful that his friend sent the dollar. Mr. Talbot thought this much better than

high seeding, and thought also that experience had shown very little difference in the results on the crop between using for seed the eyes from either end.

Mr. Martin said that he had been advised by an old cultivator to place the cut side up in planting potatoes.

Mr. Capen said that in planting potatoes he puts the cut side uppermost. He spoke of a cultivator who soaked cut potatoes in a solution of Paris green, and strewed them between the rows of planted potatoes before the latter were up, as turnip growers in England strew poor turnip seed in trenches. The potato beetles ate the poisoned potatoes, and thus many were destroyed which would otherwise have preyed on the crop.

Hon. Marshall P. Wilder concurred with Mr. Talbot and Mr. Capen in regard to the advantage of avoiding high seeding. The same principle applies to squashes and melons, or fruit trees, none of which can produce the best results when crowded. His system of planting potatoes is to place one or two strong eyes in a hill.

Mr. Capen said that he prefers to plant in drills, and places the potatoes about a foot apart in the drills. He ploughs from the plants, and then has only a narrow space left to hoe. He cultivates at intervals of one or two weeks in opposite ways. To secure the best crop of squashes he planted the pure Marrow as far as possible from the hybrids, and every year added a little of the pure Marrow seed to the seed from hybrids; by so doing he thought the crop was more than doubled. He plants squash, melon, and cucumber seeds in drills, as we plant peas, putting in a supply for the bugs as well as for the crop. After the plants have grown sufficiently to allow it, they are thinned so that each one left has a better supply of food than by the usual way of planting in hills.

Mr. Wilder said that the first cross in plants is like that in animals, stronger than the parents. He does not believe that hybridizing affects the fruits of squashes, melons, etc., the first year.

Alfred W. Paul said that he practised cutting his potatoes to a single eye for seed. In the Early Rose, what appears to be a single eye is really a cluster of eyes, of which only one usually grows. He plants in drills and gets more and better potatoes for market at fifteen inches apart than at a foot. In one experiment he did not get as large a yield at fifteen inches apart in the row, as at four feet apart, the land being in a high state of cultivation.

Mr. Wilder inquired of Mr. Paul what quantity of strawberries was raised in Dighton, where he resides.

Mr. Paul replied that he had tried to get correct and full information on this point. More strawberries are grown in Dighton than in any town east of the Hudson River. They are mostly Wilsons. In 1877 there were 772,600 quarts produced in the town. In 1878 and 1879 the crops were small, owing to the blight and the depredations of the larvæ of the May beetle. Last year about a million quarts were produced. This was about two-thirds what the crop would have been, but for the drought, which was, with one exception, the severest known during the strawberry season for fifteen or sixteen years. The largest well authenticated crops that he has known of have been raised in Dighton. The best crop he had known was four years ago on an acre and three-quarters of land (half being an old bed, which does not produce as well as a new), that yielded 17,000 quarts. Another half-acre yielded 6,400 quarts. He thought that the average of old and new beds — some being three years old — was about 5,000 quarts per acre for the year 1877. The business did pay, but is now overdone, and the quantity raised will be reduced rather than increased. The larvæ of the May beetle injure strawberry plants more in sod land the first year after it has been broken up, than after it has been cultivated in hoed crops one or two years, and the plants should therefore be set only after the sod is rotted. The Wilson has deteriorated within a few years, and is subject to a blight on both fruit and plant, which destroys it—in some cases, in a few days. None of the new varieties are so productive as the Crescent, but it is smaller and softer than the Wilson, and not of as good quality. The Sharpless has not been tested sufficiently. The Charles Downing is cultivated more largely than any other variety except the Wilson, and if firmer would supplant that variety. The Turner's Beauty, from Southern New Jersey, has failed two years out of five, but the other three years it was equal in productiveness, and superior in quality, to any kind he has tested. Last year the strawberries averaged eight cents per quart at wholesale, out of which the grower had to pay the cost of growing and picking, freight, commission, and rent of land.

Few raspberries are cultivated at Dighton, but Mr. Paul thought that a hardy variety would be profitable. The Turner is most

promising, but is not exactly what is wanted. It is as hardy as a burr oak, but the berries are only of medium size and are soft. It suckers very badly. The Brandywine kills out, and even when the canes were laid down they did not survive, but appeared to be smothered. Some winters are very different from others in their effect on plants. Winter before last some of the strawberry plants appeared to be smothered, but during the winter now closing the ground has been frozen continuously, and the prospect is better.

Mr. Wilder thought two men could lay down and cover an acre of raspberries in a day. He would not cultivate either the Philadelphia or the Brandywine, because they sucker so immensely. He commended the Caroline as quite hardy. It is a hybrid between Brinckle's Orange and the Catawissa, of orange color, and unless fully ripe has a pretty sharp acid. It roots somewhat from the tips like the Black Caps. No white cherry, currant, or raspberry will bring as much in the market as red ones.

Mr. Paul said he had attempted to raise currants; he had planted nearly all Versaillaise, but some Cherry, and had found no difference between the two. One currant bush would bear a good crop; the next a moderate crop, and a third none at all—which he could not account for. He had found a borer very troublesome in his currant bushes.

The Chairman had found the same trouble in regard to the productiveness of currant bushes as Mr. Paul. He intended in raising new plants to take cuttings only from the most prolific.

Mr. Wilder said that the course proposed by the Chairman would give a stock of productive bushes. He introduced the Versaillaise currant from France many years ago; there was a great demand for the plants, and they got mixed with the Cherry currant, but they are distinct, and the Versaillaise is best.

John Fillebrown said that he knew an instance of a man's planting a peck of Hill's Early peas, from the produce of which he sold fifty dollars' worth. At Arlington, where he carries on the business of market gardening, they have to irrigate in order to get good crops of vegetables. Melons are a very uncertain crop; the year before last he had a fine piece, but at a critical time there came two or three days of rain, and he never picked a melon from it. He had not tried any remedy for lice on melons; when they come they eat so fast that it would be useless to try to pre-

vent it. The only thing to be done for the maggot or borer is to cut it out. A small or moderate crop is more profitable than a large one.

Mr. Martin, in answer to an inquiry from Mr. Wilder, named the Surprise, Casaba, and Bay View melons as superior to any others. He had had no trouble with his melons from the weather.

Mr. Wilder said that the Boston greenflesh melons are renowned for their excellence. He could not grow the finest kinds in perfection, and was obliged to rely on such as would in a measure take care of themselves. The Christiana, originated by the late Captain Josiah Lovett, is the hardiest. The Casaba grows very strongly, and the fruit is large and almost as good as the greenfleshed kinds. The Bay View is good and easily grown; it is much like the Casaba. For earliest he cultivates the Japan White; it is small but very delicious. It is not so easily grown as the other kinds named. The Golden Orange is next in earliness to the Japan White, and quite as good. He saves seed from the best specimens, and perpetuates the different varieties without much crossing.

He has used specific manures from the time when guano was introduced, and takes great care in mixing them. He made a strong compost for melons, and ploughed in and also put it in the hills. It consisted of two cords of loam, one hundred pounds of guano, and half a cord of manure. His foreman told him he would destroy all his melons with it, but he put a few quarts in each hill and never had such a crop of melons.

John C. Newton, being called on, said that his experience in horticulture had been confined mainly to the cultivation of pears. For two years he had been troubled with pear blight, which had destroyed his best trees. He asked whether it was not induced by too high culture.

Mr. Wilder said that he never saw a pear tree over-manured, though the late Samuel G. Perkins ascribed the death of a large Seckel tree to plethora, by manuring.

Rev. F. L. Capen had seen pear trees killed by the application of excessive quantities of green manure.

Mr. Newton said that he would not put green manure to a pear tree, but would compost it with loam and let it lay from twelve to eighteen months, and turn it over three or four times.

Mr. Fillebrown thought there was no such thing as over-

manuring. In the market gardens at Arlington large quantities of fresh manure are used. At Philadelphia, in the month of December, he was surprised to see the large quantities of night soil applied to the ground. He thought it a very coarse way of raising vegetables, and was astonished to see the vegetables grown by it.

James Fisher spoke of a novel way of raising potatoes, which he saw in Illinois. The ground is subject to drought, and is ploughed and harrowed perfectly smooth, and the potatoes are then placed on it and covered with from fifteen to twenty inches of straw or strawy manure, which protects them from drought, and they grow up through it. Seventy miles from Chicago he saw the ground covered with two feet of straw to smother Canada thistles.

Mr. Wilder said that twitch grass could be destroyed in the same way, or by planting the ground with cabbages, which, when grown, afford such a perfect shade as to destroy everything beneath them.

Rev. Mr. Capen had seen potatoes grown in Florida in a trench filled with thatch. The thatch was removed from time to time, and such of the potatoes as were large enough were picked out, and the thatch was then replaced for more to grow.

Mr. Fillebrown thought that the ashes of a cord of manure would be worth as much as the manure. He mentioned an instance where coarse strawy manure was applied for a crop of beets on a hot day in July, when the manure dried so as to have a burnt appearance, but no difference could be told between the crop there and that fertilized with manure in the usual condition.

BUSINESS MEETING.

SATURDAY, March 26, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President John B. Moore, in the chair. No business being brought before the meeting, it was dissolved.

MEETING FOR DISCUSSION.

The report of the Committee appointed on the 5th of March to prepare a list of the best Deciduous Trees and Shrubs, and the best Conifers, was read by the Secretary.

Report.

The Committee, to whom was referred a selection of the best twenty Deciduous Trees and Shrubs, as also twenty of the most desirable Evergreens, beg leave respectfully to report as follows:

In the absence of all instruction as to whether the selection was intended for the purpose of planting places of some magnitude, or to be confined to what seems to be the future character of suburban homes,—a comparatively small number of acres, — your Committee, or rather a portion of them, have made the latter selection, choosing trees and plants of a secondary size, rather than those they might have recommended for the adornment of large estates, where much space would have been required.

The Committee likewise wish to say that these three selections were made by three members of the Committee of five (two declining to serve), without any consultation with each other, it being thought that by this course, the public would receive their individual opinions and experience without any bias or influence from mutual discussion or comparison.

HENRY WINTHROP SARGENT, *Chairman.*

The first list, which was selected by the Chairman of the Committee, and is intended for places of moderate or small extent, is as follows:

Deciduous Trees.

Weeping Beech.
Fern Leaved Beech.
Purple Beech.
Cut Leaved Weeping Birch.
Young's Weeping Birch.
Upright Pyramidal Birch.
Purple Leaved Birch.
Weeping Larch.
Weeping Silver Linden.
Imperial Cut Leaved Alder.
Golden Oak.
Golden Catalpa.
Golden Locust.
Variegated Maple.

Weeping Cypress.
Weeping Bird Cherry.
Variegated Dogwood.
Virgilia (Yellow-Wood).
Magnolia cordata.
Magnolia Soulangeana.
" conspicua.
" glauca longifolia.
" Lennei.
Camperdown Weeping Elm.

Shrubs.

Dwarf Horse Chestnut.
Oak Leaved Hydrangea.
Hydrangea paniculata grandiflora.
Viburnum plicatum.
Berberis Bealii.
" Japonica.
Scarlet Dogwood.
New Weeping Scarlet Thorn.
New Double White Thorn.
New Double Scarlet Thorn.
Paul's Crimson Thorn.
Kœlreuteria paniculata.
Judas tree.
Malus floribunda.
Fern Leaved Sumach.
Golden Elder.
Weeping Sophora.
Azalea mollis.
Rhododendrons.
Japanese Maples.

Evergreens.

Abies orientalis (Oriental Spruce).
" Canadensis (Hemlock Spruce).
Weeping Hemlock.
Picea pungens (Blue Spruce).
Victoria Spruce.
Weeping Norway Spruce.
Golden Yew.
Golden Upright Yew.
Waterer's Seedling Yew.
Young's Golden Juniper.
George Peabody Arbor Vitæ.
Vervaene's Arbor Vitæ.
Semper Aurea Arbor Vitæ.
The Retinosporas.
Cephalotaxus Fortunei.
" drupacea.
American Holly.
Maxwell's argentea Holly.
Thuiopsis dolabrata.
" borealis.
Pinus Cembra.

The next list, by H. H. Hunnewell, is intended for a much more extensive place than the above.

Deciduous Trees.

Elm, American.
" English.
Oak, White.
" Scarlet.

Maple, Sugar.
" Norway.
" Scarlet.
" Japanese atropurpureum.
Other Japanese Maples.
Beech, American.
" Copper.
" Weeping.
Cut Leaved Weeping Birch.
Tulip tree.
Magnolia acuminata.
Magnolia Lennei.
Linden, European.
" American.
Virgilia lutea (Yellow-wood).
Salisburia (Gingko).
Dogwood.
Catalpa.
Flowering Cherry.
Common Chestnut.
Liquidamber.
Weeping Willow.

Coniferous Trees.

Abies alba (White Spruce).
" Canadensis (Hemlock Spruce).
" excelsa(Norway Spruce)
" orientalis (Oriental Spruce).
" Menziesii.
" Alcoquiana.
" polita.
" Douglasii.
Picea Nordmanniana (Nordmann's Fir).
" Cephalonica.
Pinus Pichta.
" Lambertiana.
" Pyrenaica.
" excelsa.
" Strobus (White Pine).
" Cembra.
" sylvestris.
Sciadopitys verticillata.
Larix Americana.
" Europæa.
Retinospora obtusa.
" plumosa aurea.
" filifera.

The following list was selected by William C. Strong:

Deciduous Trees.

Acacia, Three Thorned.
Beech, American.
" Purple.
" Weeping.
Birch, Cut Leaved Weeping.
Cherry, Myrtle Leaved Weeping.
Elm, American.
" Camperdown Weeping.
Gingko (Salisburia).
Maple, Norway.
" Reitenbach's purple.
" Scarlet.
" Schweidler's.
" Sugar.
" Wier's Weeping.
Magnolia acuminata.

Sophora Japonica.
Tulip tree.
Virgilia, or Yellow-Wood.
Walnut, Black.

Shrubs.

Almond, Double White.
Azaleas, Ghent.
Clethra alnifolia.
Cornus sanguinea.
Cydonia Japonica.
Deutzia crenata flore pleno.
Exochorda grandiflora.
Forsythia viridissima.
Fringe tree, White.
Hydrangea paniculata grandiflora.
Hawthorn, Scarlet.
Kalmia latifolia.
Magnolia glauca.
Prunus triloba.
Rhododendrons.
Roses.
Spiræa ariæfolia.
" prunifolia.
" Thunbergii.
Syringa Josikæa.
Viburnum plicatum.

Evergreen Trees.

Arbor Vitæ, Booth's.
" George Peabody.
" Hovey's Golden.
" Pyramidal.
" Vervaene's.
" Siberian.
Fir, Engelmann's.
" Nordmann's.
Pine, Austrian.
" Swiss Stone.
Pine, White.
Retinospora filifera.
" plumosa.
" plumosa aurea.
" squarrosa Veitchii.
Spruce, Hemlock.
" Norway.
" Norway Weeping.
" Oriental.
" White.

Discussion.

Hon. Marshall P. Wilder thought such lists as the above, from gentlemen so experienced in the cultivation of ornamental trees and shrubs, were great acquisitions.

William C. Strong said that, though the lists were made by different individuals, it was remarkable how closely the last two ran together. He felt a good deal of difficulty in making his selection, because a list which would be exactly what one person would want, might be entirely unfitted for another. Many trees which are extremely desirable, are entirely omitted; the ailanthus, which, for some purposes, produces an effect that no other tree

gives, is not mentioned. A bare list may be misleading; one half may be just what a planter wants, and the other half may be what he does not want. The problem before the Committee differed from making a selection of roses or pears, and was much more difficult, because the character and habits of the trees are so different.

Benjamin G. Smith said that the three gentlemen who had reported were very familiar with the subject; and he thought Mr. Sargent's list well adapted to small places, and those of Mr. Hunnewell and Mr. Strong, to large places.

Mr. Wilder said that Mr. Strong was so conscientious and so desirous to give a list which all could understand without study, that he found it difficult to satisfy himself, but any one who has any idea of rural adornment, can select from these lists. In regard to some trees, such as the purple beech, cut leaved weeping birch, and virgilia, they are unanimous.

Mr. Strong hoped that the circumstances under which each tree does best would be added to the report of the Committee, and that the trees best adapted to particular localities would be mentioned.

Leander Wetherell thought that the greatest error in planting trees was the disregard of their adaptation to the soil. The sugar maple should never be planted in gravelly or sandy soils, nor should the elm. Emerson says that regard should also be had to the ripening of the leaves, beginning with the sumach and scarlet maple, which are earliest, and ending with the brown oak leaves, so as to produce the finest effect in autumn.

Mr. Strong said that the adaptation of a tree to the soil in which it is to be planted, is a point not understood by the public. All agree that the magnolias are very desirable, yet they are utterly unfit for dry soils; but this fact does not appear on the list.

Mr. Smith asked whether elms do not grow on dry soils.

Charles M. Hovey said that Cambridge is famous for dry soils, yet it is also noted for fine elms, such as the Washington elm, and the two elms at the "gates of Arlington," on a sandy knoll. There is another near the Botanic Garden. His own ground is partly moist, but he has no such elms in the moist as in the dryer parts.

Mr. Smith said it was well known that Cambridge Common,

near which the Washington elm grows, is sandy. He had seen excavations there eight or ten feet deep, showing only sand.

Alexander Dickinson considered the elm the toughest of all trees. It will grow where anything else will grow, even where the tide flows. About thirty years ago, he planted an elm near his soap works, in Cambridgeport, where the tide frequently flows and the soil is chiefly marsh mud, and it has thriven and grown well. He had seen magnificent elms at Goffstown, and also at Manchester, N. H., in sandy soil.

The Chairman said that elms grow at Concord on sand banks; they make long rambling roots.

Mr. Wilder said it is true that elm roots run wide and deep. One of the Paddock elms, on the opposite side of the street, sent its roots into the burying ground and entwined them around the skull of James Otis. Roots run deeper than is generally supposed; in ground prepared for a dahlia bed, he had had strawberry roots run down three feet.

Rev. A. B. Muzzey said that he was jealous of the reputation of Cambridge, and that a portion of the soil is clay, even in the highest parts, while in other elevated places the soil is sandy. Some of the soil is probably drift from the North Pole, which was partly clay, and was carried into certain parts of Cambridge, so that the soil changes entirely within a very short distance. He believed that there is clay within reach of the roots of the elm trees which have been mentioned as growing on sandy soil, and that those who have referred to them, and those who believe the elm does best in moist soils, are both right.

E. H. Hitchings said that the largest elm he knows, which is twenty-eight feet in circumference, is in a sandy soil.

Mr. Wetherell mentioned an avenue of elms at Hatfield, in a mixture of sand and clay. He was still of the opinion that the elm prefers a moist soil, and quoted from "Gray's Manual" the statement that it is found in "moist woods, especially along rivers, in rich soil."

Mr. Hitchings said, while disclaiming any intention to detract from the authority of so eminent a botanist as Dr. Gray, that the concise statements of his "Manual" cannot always be taken as covering all the facts in regard to a tree or plant. Dr. Gray says, that the *Habenaria blephariglottis* and *H. ciliaris* are found in moist soils, and it is true that they generally are, but the speaker had

frequently found them also in dry places. So the elm may be found in sandy as well as clayey soils.

The Chairman said that there are many large elms in Concord; some are twenty feet in circumference, with no soil to be seen about them. There is one in front of the town house. They have no difficulty in growing in sandy soil. On ploughed land near the river, some of the roots run near the surface. He had seen a root six rods from the tree, as large as his wrist, and so strong that two yoke of oxen could not break it. The roots are very tough. He has large elms near his house, and the bottom of the cellar is full of the roots. The bottom of his well is also full, and they stop up drains.

Mr. Wetherell remarked that the roots of maples in Hardwick had stopped up the drains on the Common.

O. B. Hadwen said that he was much interested in the report of the Committee, though his farm was not large enough, nor his purse long enough, to plant all the trees recommended by them. Each one should study the habits of trees, and plant those best adapted to his situation. No roots penetrate the soil deeper, or hold on with more tenacity, than those of the elm. There are others than the elm, which are not adapted to all situations. As a member of the Committee on Shade Trees in the city of Worcester, he had found that the rock, or sugar maple will not thrive in either sandy or clayey soils. The Norway maple often succeeds where the sugar maple fails, and will live and thrive in the streets. There was hardly a tree on the three lists reported by the Committee but he liked, and any one could choose from them. He spoke of the beauty of the purple beech, and alluded to a fine specimen on Mr. Wilder's lawn. Many years ago, he visited William Kenrick's nurseries, with the late William Lincoln, where they saw a purple beech for the first time, and when Mr. Lincoln was told what it was, he said that he had heard of a thing being knocked into the middle of next week, but this knocked him into the middle of next autumn.

It was voted that the lists be accepted and referred to the Committee on Publication.

The Chairman here announced that the List of Roses reported on the 19th instant, by the Committee appointed for that purpose, was printed, and ready for distribution to the members. He

added that, as a member of the Committee, he was of the opinion that one most important thing had been omitted, viz.: a list of ten or twelve of the most promising new roses. Among these is the Mabel Morrison, which he thought the best of all the white roses—a class in which first rate kinds are deficient.

Mr. Strong thought the list valuable and serviceable, but also misleading. La France is a splendid rose, but good for nothing for general cultivation.

Mr. Wilder said that, in France, La France received a greater number of votes than any other rose.

The Chairman and Mr. Strong both thought it worthless for general cultivation, out-doors or in.

Mr. Hovey thought that if the Committee had described the list as comprising the best roses for exhibition purposes, no exception could have been taken to it. The Baroness Rothschild is in the same case with La France; Captain Christy is wholly tender; Madame Eugénie Verdier is tender.

The Chairman said that two years ago, he began to examine roses critically, to see which were best, judging by points, and was surprised to find so many of high repute ranking low. Paul Neron, our largest rose, has no fragrance, and marks low on that point.

E. W. Wood thought the Society could do no better work than to publish select lists, especially of fruits. This list of roses represents large growers. He would like to have the best one, and the best twelve designated.

The Chairman said that the best one under each color was placed first, as white, Mlle. Bonnaire; blush, Baroness Rothschild; pink, John Hopper; rose salmon, Marie Finger; rose, Victor Verdier; light carmine red, Etienne Levet; red, Alfred Colomb; crimson, Louis Van Houtte.

Mr. Hovey objected that the colors were not described with sufficient exactness; one rose might be of a silvery hue, and another of a dark shade of the same color; one might be of an opaque and another of a translucent crimson.

Mr. Wood said that many persons plant roses in prominent places, and that those which bloom only in June are not things of beauty after that time. The Committee could select kinds which would bloom from June until frost, and he would like to have the names of a dozen such. In his observation, the Mme. Alfred

Rougemont is the most continuous bloomer of all. It is perfectly hardy, though not vigorous, and very useful for bouquets. The color is white, tinged with pink.

Mr. Wilder recommended the white Mme. Plantier rose. It is not perpetual.

The Chairman said that the subject of color was talked over in the Committee for an hour, and it was found impossible to designate all shades. Every one is not as well informed as Mr. Hovey, in regard to colors. As to the objection made by a previous speaker, to Baroness Rothschild, that it is too large for bouquets, the Chairman said that it is not necessary to put it into bouquets. A single flower in a vase is as beautiful as a bouquet, without the help of the florist. The Committee were all prominent rose growers, not second to any in the Society, and gave their best judgment to making up the list, but the speaker was of the opinion that some of the new roses would soon supersede some of the kinds on the list.

Mr. Hovey thought the list was an excellent one, but he was speaking for amateurs, who want to cut flowers for their friends, and instead of one great flower of Baroness Rothschild, would rather have ten smaller ones.

Mr. Wilder said that if one-half the varieties on the list prove as desirable as we know they will, we have got some valuable information.

The Chairman thought there were not ten varieties on the list that were not desirable for general cultivation. La France and Baronne Maynard, are both tender, and so are all the white Hybrid Perpetuals. If roses are wanted to peg down in beds, those with withy shoots should be selected.

Mr. Wood asked if we could not select twelve or eighteen perpetual bloomers from the list.

The Chairman replied that we could; many of them are more constant bloomers than others.

Mr. Strong said that while all think the list a valuable one, it must be taken with exceptions; but the public will take it just as it is. It would be better to publish it with comments, and the same with the lists of trees and shrubs; otherwise the public will be misled. There are many roses not on it, that are more valuable than those recommended, such as Gen. Jacqueminot and Triomphe d'Angers.

The Chairman said that if we could strike out half a dozen varieties from the list, it would be a safe one, though there are many on it that he would not plant, but would prefer new varieties.

Mr. Hovey said that if a customer should order twelve plants of La France, he could not recommend them, and it would be unpleasant for him to differ from the Society. Mme. Nachury is only seen at Mr. Gray's. Jules Margottin and La Reine are well established kinds, with which no fault can be found. De la Grifferaie is an old rose, of which the speaker has a plant that bears three thousand flowers. Such roses are like rhododendrons, which are valuable for their masses of bloom. Col. Wilder would not recommend a pear after only two years trial, and roses, also, require time to test their value.

Mr. Smith said that he found no difficulty in growing La France, by laying it down and covering with leaves. If we can grow a very beautiful thing with a little extra attention, we had better give it that.

Mr. Wilder said that the agapanthus and the hydrangea may be grown in the open ground by being thoroughly protected with leaves or straw during the winter.

The Chairman said that if any one expected to let Hybrid Perpetual roses run wild, like blueberry bushes, and get good flowers, he would be disappointed. In all our discussions of roses, it has been taken for granted that they would have good culture. They must have it.

Mr. Wood said that he did not question the judgment of the Committee, but he would like, first, a list of twelve roses best adapted for general cultivation; second, a list of twelve continual bloomers; and, third, a list of the twelve most promising new roses. The present list is valuable, but gives no information as to the continuous blooming of the varieties named.

The Chairman said there were not more than seven or eight roses on the list that could possibly prove a failure on the ground of tenderness. As to the first two, all white Hybrid Perpetuals are more tender than the colored. No rose is first class in all respects. Baroness Rothschild is slightly tender, but he earths it up and has no trouble. La France is the most tender variety on the list, but he grows and winters it. Xavier Olibo is of the most beautiful color, but not a good grower. Growth was one of the points considered by the Committee. Louis Van Houtte, in dry,

sheltered places, is all right, but in a wet place is bad. La France might be the same. He did not agree wholly with the report, but could not expect to have his own way all the time. The Committee went through the whole list of roses, and when a name was called, each member marked independently of the others, and the markings were then compared. The Committee of five were unanimous with regard to twenty or twenty-five out of the forty-eight varieties recommended, and the others had four or three votes. It does not take so long a time to test roses as pears; their value can be judged of in three or four years.

Mr. Wetherell moved that the list be recommitted with instructions to indicate the freest bloomers, and those most desirable for bedding; and to add a list of the most promising new roses, and this motion was carried.

A vote of thanks to the Chairman and members of the Committee on Publication and Discussion, for the faithful manner in which they had discharged their duties, was unanimously passed.

The meeting was then dissolved.

CONTENTS.

	PAGE
PREFATORY NOTE,	3
BUSINESS MEETING, January 1, 1881; Address of President Hayes, pp. 5-10; Amendments to the Constitution and By-Laws, 10, 11; Invitation to the American Pomological Society, 11; Alterations in Building, 11; Reports of Committee on Vegetables and of Arrangements read, 11; Award of Prospective Prize, 12; Proposals for Membership, 12; Portrait of the President, 12; Announcement of Meetings for Discussion,	12
BUSINESS MEETING, January 8; Appointment of Treasurer and Secretary, p. 12; Proposals for Membership, 13; Further Time Granted to Treasurer,	13
MEETING FOR DISCUSSION; Hardy Rose Culture, by William H. Spooner, pp. 13–18; Discussion,	18-24
BUSINESS MEETING, January 15; Committee on Meeting of Pomological Society, p. 24; Report of Treasurer and Finance Committee presented, 24; Election of Members,	25
MEETING FOR DISCUSSION; Hardy Rose Culture,	25–29
BUSINESS MEETING, January 22; Prizes for Essays announced,	30
MEETING FOR DISCUSSION; Tropical Fruits and Flowers, by John E. Russell,	30–35
BUSINESS MEETING, January 29,	35
MEETING FOR DISCUSSION; Fruits Best Adapted for Market Purposes, by E. W. Wood, pp. 36–41; Discussion,	41–46
BUSINESS MEETING, February 5,	47
MEETING FOR DISCUSSION; Southern Competition in Small Fruits,	47–56
BUSINESS MEETING, February 12,	56
MEETING FOR DISCUSSION; Peach Culture, by Caleb Bates, pp. 56–59; Discussion,	59–64
BUSINESS MEETING, February 19,	65
MEETING FOR DISCUSSION; Peach Culture, pp. 65–69; Plum Culture,	69–72
BUSINESS MEETING, February 26; Plate for Certificates of Merit,	72
MEETING FOR DISCUSSION; New Hardy Ornamental Trees, Shrubs, and Plants,	73–78
BUSINESS MEETING, March 5; Decease of E. Fred Washburn, Hon. John C. Gray, George B. Emerson, LL.D., and Henry Vandine, announced, p. 78; Election of Members,	78
MEETING FOR DISCUSSION; New Hardy Ornamental Trees and Shrubs, by F. L. Harris, pp. 79–82; Discussion, 82–87; Committee to Prepare List of Trees and Shrubs,	87

PAGE

BUSINESS MEETING, March 12, ... 88

MEETING FOR DISCUSSION; Vegetables and their Culture, pp. 88-95; Plum Culture, ... 95, 96

BUSINESS MEETING, March 19; Seeds from California, ... 96

MEETING FOR DISCUSSION; List of Roses reported, pp. 96-98: Vegetables and their Culture, 98, 99; Strawberries at Dighton, 100; Raspberry and Currant Culture, 101; Vegetables and their Culture, ... 101-103

BUSINESS MEETING, March 26, ... 103

MEETING FOR DISCUSSION; Select Lists of Trees and Shrubs reported, pp. 104-107; Discussion of Report, 107-110; The Best Roses, 110-114; Vote of Thanks to Committee on Discussion, ... 114

A HISTORY

OF

AMERICAN HORTICULTURE.

The attention of Trustees and Librarians of Public Libraries, and of Horticulturists generally, is called to the History of the Massachusetts Horticultural Society, for fifty years, from its foundation in 1829. This work will be found of general interest, as the introduction comprises a sketch much fuller than exists elsewhere, of the History of Horticulture in the United States, from the settlement of the country to the foundation of the Society, and the history of the Society onward is, in the language of President Hovey, in his address at the dedication of the present Hall of the Society, "the History of Horticulture in our country." It is handsomely printed, on an extra quality of paper, and embellished with a fine steel engraving of Gen. H. A. S. Dearborn, the first president, and heliotypes of the two Halls erected by the Society. Among other interesting matters, it contains an account of the foundation by the Society, of Mount Auburn Cemetery, the parent of all similar cemeteries in the country.

The work is furnished to members of the Society at cost, $2.50, and to others than members for $3, but will be supplied to public libraries and booksellers at the same price as to members. Please address the Secretary of the Society, at Horticultural Hall, Boston.

ROBERT MANNING,

Secretary.

TRANSACTIONS

OF THE

Massachusetts Horticultural Society,

FOR THE YEAR 1881.

PART II.

BOSTON:
PRINTED FOR THE SOCIETY.
1882.

TRANSACTIONS

OF THE

Massachusetts Horticultural Society,

FOR THE YEAR 1881.

PART II.

BOSTON:
PRINTED FOR THE SOCIETY.
1882.

The Committee on Publication and Discussion, take this opportunity to repeat what they have heretofore stated,—that the Society is not to be held responsible for the certainty of the statements, the correctness of the opinions, or the accuracy of the nomenclature in the papers and discussions now or before published, all of which must rest on the credit or judgment of the respective writers or speakers, the Society undertaking only to present these papers and discussions, or the substance of them, correctly. The award of a prize or gratuity for an Essay is not to be understood as implying that the Committee approve it in every particular, but only that they believe it calculated, *on the whole*, to promote the science or art of Horticulture.

Benjamin G. Smith, *Chairman.*

TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

BUSINESS MEETING.

SATURDAY, April 2, 1881.

A duly notified stated meeting was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair.

Hon. Marshall P. Wilder presented to the Society six copies of the Proceedings at the Session in 1879 of the American Pomological Society, of which he is President. The thanks of the Society were voted to Mr. Wilder therefor.

The following appropriations, having been approved by the Executive Committee, were unanimously voted:—

For Prizes for the year 1881, ...	$3,050
For the Library Committee, for the purchase of magazines and newspapers, binding of books, and incidental expenses of the Committee, .	200
For the Committee on Publication and Discussion, ...	150
For the expenses of the Committee of Arrangements, ...	250

The amendment to the Constitution and By-Laws, proposed at the stated meeting of the Society on the 1st of January, and then ordered to be entered on the records, came up for final action, and, after being again read by the President, was unanimously adopted, as follows:—

Voted, That the thirteenth and sixteenth sections of the Constitution and By-Laws of this Society be amended by striking out in

the thirteenth section the words, "He shall also act as Superintendent of the Building, subject to the orders of the Finance Committee, and shall attend to the care and letting of the same, and the collection of rents, and other income of the Society." And, also, in the same section, strike out the words, "He shall also act as Librarian under the direction of the Library Committee." And strike out in the sixteenth section, after the word "appoint," in the sixth line of the printed copy of the By-Laws, the words, "A Treasurer and a Secretary of the Society," and insert, after the words in the seventh and eighth lines of said copy, "Whenever a vacancy shall occur," the words, "A Treasurer, a Secretary, a Superintendent of the Building, and a Librarian of the Society, and define their respective duties, except when these are determined by the By-Laws."

Adjourned to Saturday, May 7.

BUSINESS MEETING.

Saturday, May 7, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair.

Hon. Marshall P. Wilder, Chairman of the Committee appointed at the meeting on the 5th of March to prepare resolutions in memory of George B. Emerson, LL.D., Hon. John C. Gray, Henry Vandine, and E. F. Washburn, reported as follows:—

Resolved, That in the decease of George B. Emerson, LL.D, there has been removed from our circle one who has been an active promoter of educational development, and a devoted friend of horticultural art. Engaged during his whole life in the great work of public education, he still found hours of leisure to practically illustrate the pursuit he loved so well, and which he considered of such importance to the development of the industry and the greatest interests of our State.

Resolved, That in his labors as one of the Commissioners for an Agricultural Survey of the State, and in his elaborate Report on the Trees and Shrubs of Massachusetts, we recognize the intelli-

gence, ability, energy, and fidelity with which he discharged his duties; and the revision of that Report, which was one of his latest works, is an honor to us and to the State which he so well served. To him are we also indebted for the advice which led to the foundation of the Arnold Arboretum.

Resolved, That as an educator and instructor, a representative of liberal ideas, an honored citizen, a kind friend, and a sincere and Christian man, his death is a public loss. Our consolation is that he had reached that ripe age when all must cease from earthly cares and toils, and where few could look back on a life better spent for the welfare of their fellow men.

Resolved, That in the removal by death of the Hon. John C. Gray, the last survivor of the first board of Vice-Presidents of this Society, we have to mourn the loss of one who, in its early history, contributed largely by his influence and addresses to its advancement and popularity.

Resolved, That we hold in grateful remembrance his valuable services in the cause of terraculture, not only in this Society, but as President of the Massachusetts Society for Promoting Agriculture, and also for his other official services in connection with the progress and prosperity of the institutions of this city.

We have also to record the decease of Henry Vandine, of Cambridgeport, one of the oldest of our members. Mr. Vandine, who joined the Society in 1845, was fond of rural life, and was a successful cultivator of fruits, especially the plum and pear, as may be seen in the reports of the Society. Of the plum he made contributions when others were unable, from lack of skill or of perseverance, to do so. As a man, Mr. Vandine was singularly modest and unassuming in his manners, gentle in his disposition, and benevolent in his desires for the advancement and welfare of mankind, having in his will made special bequests for that purpose.

Resolved, That it is with the deepest regret that we have heard of the decease of our friend and fellow member, E. Fred Washburn.

He served the Society long and well on many of its most important Committees, of one of which, that on Plants and Flowers, he was a member for ten years, and all who were associated with him will ever remember his cheerful countenance, kind words, and amiable disposition.

Resolved, That these proceedings be entered on the records of the Society, and that copies of the same be forwarded to the respective relatives of the deceased.

MARSHALL P. WILDER,
CHARLES M. HOVEY,
WILLIAM C. STRONG,
JOHN C. HOVEY,
} *Committee.*

President Hayes said that he was well acquainted with Mr. Emerson, having been early attracted to him by his courteous and benevolent manners and his interest in horticulture. He spoke of the pleasure which he had in a visit from Mr. Emerson to his grounds at Lexington, and of the careful observations and valuable suggestions which Mr. Emerson made. He was particularly interested in the oaks and maples, as well as in native shrubs. He did not lose his interest in planting with age, but after he was eighty years old he planted ten thousand trees, and exchanged new and rare trees with President Hayes. He not only took pleasure himself in planting, but in looking forward to the enjoyment by others of the results of his labors.

Hon. Marshall P. Wilder also spoke of Mr. Emerson's deep interest in trees and shrubs, and said that his first report on the trees and shrubs of Massachusetts was a most remarkable volume, prepared with great practical knowledge of the subject. Soon after the establishment of the State Board of Agriculture he was appointed Chairman of a Committee — of which Charles L. Flint, Secretary of the Board, and the speaker were the other members — to prepare a book on agriculture for common schools. He was the founder, in one sense, of the Arboretum connected with Harvard College, having been a trustee of Mr. Arnold's bequest to promote the culture of trees and shrubs in such manner as he thought best. His interest in this subject pervaded his whole life.

The report was accepted and the resolutions were unanimously passed.

The Secretary announced the decease of Hon. Andrews Breed, of Lancaster, one of the founders of the Society, and Robert Manning, Marshall P. Wilder, and John G. Barker were appointed by the Chair a Committee to prepare memorial resolutions.

The following named persons, having been recommended by the

Executive Committee, were, on ballot, duly elected members of the Society:

J. C. Vaughan, of Chicago, Ill.
Charles L. Fowle, of Dorchester.
Peter D. Smith, of Andover.
Charles Storer, of Natick.
William P. Gould, of Jamaica Plain.
George W. Fowle, of Jamaica Plain.

Adjourned to Saturday, June 4.

BUSINESS MEETING.

Saturday, June 4, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair.

Robert Manning, Chairman of the Committee appointed at the last meeting to prepare resolutions in memory of Hon. Andrews Breed, reported the following:—

The Massachusetts Horticultural Society have learned with deep regret of the decease of the Hon. Andrews Breed, one of the Founders of the Society, therefore

Resolved, That we would place on record our appreciation of the services of one of those who, more than fifty-two years ago, were present at the first meeting held to form a horticultural society,—one who has watched its growth from that small beginning until it has become an important and beneficent institution, and whose interest in its work continued through his active business career and the retirement of his later years, and ceased only with his life.

We would remember his labors for the promotion of horticulture in his native city of Lynn, not only in his own garden, but for the public benefit, on the Common, where the people walk under the trees which he took from the forest with his own hands and planted there. We would pay our tribute to his industry, perseverance, economy, integrity, and business enterprise; to his public spirit, his Christian virtues, and his untiring zeal in all that tended to promote the welfare of the community. He was a tried and true

friend, and his kindness and courtesy were displayed to all with whom he came in contact. His fellow citizens testified their esteem for him, and their confidence in him, by electing him chief magistrate of their city, and by frequently calling him to positions of trust.

Resolved, That while we mourn the loss of a good man, we are consoled by the thought that his death was not untimely, but that he lived to a good old age to benefit his fellow men, and rejoiced many years in the prosperity of this Society, which he helped to establish, and that he has left two generations of descendants who inherit his love for horticulture, and practise the art which it is the object of this Society to promote.

Resolved, That these resolutions be entered on our records, and that a copy be transmitted to the family of Mr. Breed.

ROBERT MANNING,
MARSHALL P. WILDER,
JOHN G. BARKER,
} *Committee.*

After remarks by Hon. Marshall P. Wilder the resolutions were unanimously passed.

Mr. Wilder presented the following letter from the family of George B. Emerson, LL.D., which was read by the Secretary: —

GENTLEMEN,—

Mr. Lowell and I are very much gratified by the appreciative and thoughtful notice of my dear father at the late meeting of the Massachusetts Horticultural Society, and thank you for your kindness in drawing up and sending to us the resolutions, which give us a great deal of pleasure and consolation. My father found so much of the happiness of his very happy life in the study of the works of God, especially in plants, flowers, and trees, that it is very delightful to me to be assured that his services were appreciated by a society like yours, in which he was always so deeply interested.

With respectful thanks to you all, I am

Very sincerely yours,

LUCY B. LOWELL.

To Hon. Marshall P. Wilder.
Charles M. Hovey.
William C. Strong.
John C. Hovey.

CHESTNUT HILL, May 13, 1881.

A letter was also read from John C. Gray, nephew of the late John C. Gray, acknowledging, in behalf of the family, the receipt of the resolutions passed by the Society in memory of his uncle, and their gratification at the sentiments expressed in regard to Mr. Gray by a society in whose proceedings he took so warm an interest.

William Gray, Jr., called the attention of the Society to the fact that the "Challenge Cup," which had been won by him for the last two years as a prize for roses, was again to be competed for.

The President read the following letter:

BOSTON, June 2d, 1881.

F. B. HAYES, Esq., *Chairman Executive Committee:*

Dear Sir,—Thirty-three years of constant business activity, nearly fifteen of which have been spent in the service of this Society, lead me to desire retirement and rest.

I therefore tender to you my resignation of the office of Treasurer, to take effect when my successor shall be appointed and qualified.

In taking this course, I assure you that my interest in the welfare of the Society, and of individual members, will not be broken.

Respectfully,

E. W. BUSWELL.

The President stated that the Executive Committee had accepted Mr. Buswell's resignation, and had appointed George W. Fowle, of Jamaica Plain, Treasurer of the Society and Superintendent of the Building.

Hon. Marshall P. Wilder moved that a committee of three be appointed by the chair to consider what acknowledgment should be made to the retiring Treasurer for his services. The motion was carried unanimously, and the chair appointed Mr. Wilder, Charles O. Whitmore, and William Gray, Jr., as that Committee.

The President announced that the Executive Committee had appointed the Secretary of the Society, Robert Manning, to the office of Librarian.

The meeting was then dissolved.

BUSINESS MEETING.

SATURDAY, July 2, 1881.

A stated meeting of the Society was duly notified for 11 o'clock today, and the President was in the chair, but no quorum was present, and the meeting

Adjourned to Saturday, August 6.

BUSINESS MEETING.

SATURDAY, August 6, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair.

William C. Strong moved to rescind the vote passed September 13, 1879, that the President and Vice-Presidents should be ineligible for more than one reëlection.

The President here retired, after calling Ex-President Hon. Marshall P. Wilder to the chair. Mr. Strong's motion was seconded by Aaron D. Capen, and unanimously passed, and the President resumed the chair.

The President reported from the Executive and Finance Committees, to whom the repairs and alterations of the building were intrusted, that the repairs of the halls would be completed before the Annual Exhibition, which was to commence on the 13th of September.

Agreeably to the Constitution and By-Laws the President reported the following Committee to nominate suitable candidates for the various offices of the Society for the ensuing year,—William Gray, Jr., William H. Spooner, Charles H. B. Breck, Charles N. Brackett, Charles M. Atkinson, Charles F. Curtis, John C. Hovey.

On motion of Charles M. Hovey, Mr. Hovey, Hon. Marshall P. Wilder, and Robert Manning were appointed a Committee to nominate twenty delegates to the meeting of the American Pomological

Society, in September next, with power to add to their number or appoint substitutes.

The following named persons, having been recommended by the Executive Committee, were on ballot duly elected members of the Society:

Andrew Washburn, of Hyde Park.
P. W. Van der Veur, of New York.
J. Willard Hill, of Belmont.
Dean Pierce, of Brookline.
G. W. Batchelder, of Dorchester.
George W. Hollis, of Grantville.
John Thorpe, of Queens, N. Y.
Edwin S. Barrett, of Concord.
Dr. William H. Ruddick, of South Boston.
Hon. Oliver Ames, of North Easton.
William Bliss, of Springfield.
Charles Fairchild, of Belmont.

Adjourned to Saturday, September 3.

BUSINESS MEETING.

Saturday, September 3, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair.

William H. Spooner, from the Committee to nominate officers for the year 1882, presented the report of that Committee.

It was announced that Charles O. Whitmore, who at the end of the year will have completed fifteen years of service as Chairman of the Finance Committee, (having previously been for five years a member of the Committee,) had declined a reëlection, and Hon. Marshall P. Wilder took occasion to speak of Mr. Whitmore's services to the Society, especially in purchasing the site and securing the erection, of the Society's present building, which probably could not have been effected but for the steadfast and indomitable perseverance of Mr. Whitmore, who never wavered in the belief that the course finally adopted was for the interest of the Society.

The report of the Committee was laid on the table and it was voted that the Committee be continued and requested to nominate candidates in place of any who might decline before the election.

Charles M. Hovey, Chairman of the Committee appointed at the last meeting to nominate a list of delegates to the meeting of the American Pomological Society, to be held in this city September 14–16, reported the following, which was accepted:

President, Francis B. Hayes, Chairman.

Marshall P. Wilder,	Charles F. Curtis,
Charles M. Hovey,	J. W. Manning,
James F. C. Hyde,	O. B. Hadwen,
William C. Strong,	P. B. Hovey,
William Gray, Jr.,	Warren Fenno,
C. O. Whitmore,	John C. Hovey,
John B. Moore,	Charles H. Hovey,
John Cummings,	J. H. Woodford,
Benjamin G. Smith,	Charles N. Brackett,
F. L. Ames,	John G. Barker,
C. H. B. Breck,	E. W. Buswell,
Robert Manning,	Samuel Hartwell,
Hervey Davis,	E. P. Richardson,
E. W. Wood,	William H. Hunt.

Hon. Marshall P. Wilder, Chairman of the Committee appointed June 4th, to consider what acknowledgment should be made to the retiring Treasurer, for his services, reported as follows:

The Committee to whom was referred the matter of an acknowledgment of the services of the late Treasurer of the Society, Edwin W. Buswell, report

That, in consideration of the long and varied services of Mr. Edwin W. Buswell in the several offices which he has held in the Massachusetts Horticultural Society, they recommend that a gratuity be presented to him of five hundred dollars.

MARSHALL P. WILDER,
CHARLES O. WHITMORE,
WILLIAM GRAY, JR., } *Committee.*

The report was accepted.

The following named persons, having been recommended by the Executive Committee for membership in the Society, were, on ballot, duly elected:

J. Allen Crosby, of Jamaica Plain.
Silas Pierce, of Boston.
E. W. Willard, of Middletown, R. I.

The meeting was then dissolved.

BUSINESS MEETING.

Saturday, October 1, 1881.

A stated meeting of the Society, being the annual meeting for the choice of officers, was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair.

The Recording Secretary stated that the requirements of the Constitution and By-Laws, in regard to notice of the meeting, had been complied with.

The chair appointed Benjamin G. Smith, John G. Barker, and Robert Manning, a committee to receive, assort, and count the votes given, and report the number.

The polls were opened at eighteen minutes past eleven o'clock.

The following named persons were proposed for membership in the Society: Thomas Strahan, of Chelsea, and Christopher H. Starr, of Boston, by George W. Fowle; Rev. B. Judson, of West Dedham, by F. Copeland; Robert Elder, of Watertown, by John C. Hovey; S. F. Terwilliger, of Saratoga Springs, N. Y., by H. D. Wilmarth; and Henry Woods, of Dorchester, Hon. James P. Ray, Frank B. Ray, Hon. Joseph G. Ray, Edgar R. Ray, James F. Ray and William F. Ray, all of Franklin, by Hon. Marshall P. Wilder.

Hon. Marshall P. Wilder made appropriate mention of the long and valuable services (beginning in 1862), of Charles O. Whitmore, as Member and Chairman of the Finance Committee, and of his declination of a reëlection to that position, and moved that a committee be appointed to consider what acknowledgment should be

made to Mr. Whitmore for his services. The motion was carried, and the Chair appointed as that Committee, Hon. Marshall P. Wilder, C. H. B. Breck, and William Gray, Jr.

Mr. Wilder also announced the decease of Samuel Downer, a son of one of the founders of the Society and himself an old and active member, and moved the appointment of a committee to prepare memorial resolutions. This motion was carried, and the Chair appointed Mr. Wilder, Aaron D. Capen, and Rev. A. B. Muzzey, as that Committee.

Dr. John A. Warder, of Cincinnati, Ohio, President of the Ohio State Horticultural Society, and a Corresponding Member of this Society, who was present, was called on by the President to address the meeting. Dr. Warder, who is also President of the American Forestry Association, and deeply interested in the promotion of arboriculture, spoke on that subject, substantially as follows:

Address of Dr. John A. Warder, on Arboriculture.

Dr. Warder said that western people when they cross the Alleghanies do not feel that they have anything to tell—they look to the east for light. Agriculture—and horticulture, which is a branch of agriculture—are complex subjects, and while in parts of our country the pioneers are engaged in cutting down the forest to plant grain, in other parts the necessity of planting timber trees is, or will soon be, felt. He thought that this climacteric is fast approaching, and had come to Massachusetts to see what he could of interest in this branch of agriculture, and intended this afternoon to visit the estate of Ben: Perley Poore, at West Newbury, and see his young plantations of white ash and white pine, and his famous premium oaks. He had visited the plantations of the Messrs. Fay, at Lynn and Wood's Holl, and viewed the extensive plantations of pitch-pine and cranberries on sandy Cape Cod. Though on that wretched soil there could be no noble oaks, poplars, or catalpas, Nature provides a tree for every peculiar condition of soil or climate, and on these poor lands the *Pinus rigida* or pitch-pine flourishes—not, however, growing large enough for timber, but very soon yielding valuable firewood. In the rich soils of some parts of the country the weeds would overcome the young trees planted in them, but there no such trouble is experienced. Wherever it is

desired to induce people to plant trees they must be shown the cheapest way.

Professor Sargent, of the Arnold Arboretum, recommends American trees as most desirable for planting, and Dr. Warder agreed with him that they are most likely to be successful, but would not wholly discard trees of foreign origin. The *Ailanthus glandulosa*, which was introduced some years ago as an ornamental tree, is now being planted largely for timber, and though the speaker had feared it would not stand well so far north, it has proved otherwise. The timber is of some value; it is not strong, but takes a good finish and the color is good where a quiet tone is desired.

At Falmouth in this State there are large trees of the *Catalpa speciosa*. The distinction between this and the eastern form was first brought to the attention of the speaker in 1853, and noticed by him in the "Western Horticultural Review," which he then edited. He then felt some diffidence in calling it a distinct species, but suggested that as it was a distinct variety it should be called *Catalpa bignonioides speciosa*. It is now recognized as a species, and Dr. Warder acknowledged it as his hobby. It has been disseminated largely from Cincinnati, and is now grown by the million, at the nurseries of his friends, Robert Douglas & Sons, Waukegan, Ill. The original habitat of this species is but a few hundred miles in diameter. The tree is of very rapid growth and it is useful for ornamental planting, but its great value as a timber tree has not been understood until lately. It is very durable, there being many instances of fence posts of this timber enduring for seventy-five years. General Harrison, when at Vincennes, learned its value from the French and Indians, but did not know that it was a distinct species. In twenty years it will make three railroad ties per tree. H. H. Hunnewell, Esq., of Boston, has contracted with Messrs. Douglas, of Waukegan, for the planting of several hundred acres of this tree in Kansas. The soil is broken up and planted with grain for one year or more before setting out the catalpas. They are planted four feet apart, taking nearly three thousand to the acre, and Mr. Douglas agrees to furnish the trees and plant and tend them for three cents each, until they are old enough to take care of themselves.

In reply to a question by Leander Wetherell, Dr. Warder said that the Norway Spruce is the most successful evergreen at the West; but, on the exposed prairies no evergreen should be planted first.

The cheap trees, like the cottonwoods, must come first, to afford protection to the more valuable kinds. The adaptation of the European larch to the West, is not yet determined. The speaker found when in Germany, that two grades of this lumber were recognized there. One, growing in low grounds, is inferior, but that which grows in Alpine regions is valuable. In Styria he saw larch trees cut for railroad ties for the Viceroy of Egypt, who was to pay one dollar for each tie. In the West it generally grows well enough, but when less than twenty years old, though it blossoms and fills out its cones, it does not pefect its seeds. The conditions required for perfecting a species are numerous, and Mr. Sargent has laid it down as an axiom that no tree will be of permanent value in a region where it does not perfect its seed.

European rules of forestry, which direct to plant young trees without ploughing the land, are not adapted to the rich soils of the West. There the plantation must be tilled for three years, by which time it will be found that the trees have taken possession. After the prairie has been broken up and tilled for a year or two, it is furrowed both ways, and the trees are planted at the intersections of the furrows. If not tilled, the grass and weeds would soon smother the young trees. The cost of planting varies; cottonwoods, from the river bars in the West, are sold at the rate of one hundred dollars per *million*. When planted closely, they run up and require little trimming. The early settlers failed in their planting from not recognizing the difference in the requirements of their rich soils and the poorer lands of Europe. Now the sod is broken and cultivated in corn for a year before planting. It pays to cultivate the soil and keep it loose, so as to give the young trees a start.

President Hayes alluded to a visit which he received from the late George B. Emerson, who expressed great pleasure in seeing that he had preserved the native pitch pines. No tree has so much variety and picturesqueness as this; there are no two alike, and they are, therefore, valuable for ornament.

Dr. Warder said, in answer to an inquiry by Mr. Wetherell, whether a man could afford to grow forest trees on tillable land, that if one wants to make a large per cent. at once, he had better plant corn, but on every farm there are waste places, where in thirty years a good crop of trees could be grown. The black locust is ready for the axe in thirty years. At from twenty to

thirty years of age, it has yielded a thousand dollars per acre in the west.

Leander Wetherell spoke of an Illinois farmer, who said that as long as he could raise corn enough on an acre to pay for a year's supply of coal he preferred to do it, rather than to cut and haul wood.

Dr. Warder said that Mr. Wetherell's suggestion was a practical one. In Illinois, the farmers say they cannot afford to devote good soil to wood, but they ignore the general beneficial effect. In Iowa, where there are fewer trees than in Illinois, — in some parts averaging only an acre of wood to a square mile, — the need of trees is felt more strongly. One man there has planted them around every field, and found that when one-fifth of his ground is in wood, his crops are larger than if the whole were in grain.

In reply to an inquiry as to the climatic effects of trees, Dr. Warder said that the question is a very large one. The Romans suffered from the cold in France, and died when pursuing their enemies into Germany and Austria, the countries from which we now procure our finest wines. In Spain the population is diminishing, owing to the removal of forests. Great changes have been observed, both from the removal and the planting of trees. The question of the effect of forests on the rainfall, is also very wide, and is now being worked up by meteorologists. Not only the rain, but the humidity of a climate between falls of rain, is important, and we know that this is increased by the presence of trees. What becomes of a good rain when it falls on the ground? In a country unprovided with trees, a south wind would dry it up in a much shorter time than in one furnished with a proper proportion of wood. Here lies our danger in the dry climate of the United States.

President Hayes said that when in Madrid, he was astonished at the desolation and bareness of the hills around that city and the Escurial. It was uncomfortably cold there; the east winds were worse than in Boston. A few years afterwards he went to Germany, and became acquainted with one of the government foresters there, and it was interesting to see how all the trees were taken care of. It was a rule that for every tree taken away another should be planted.

Dr. Warder said that one great element of destruction to the forests of Spain, was the sheep which ate up even the seeds of the

trees. The same cause is now operating to destroy the forests in the Sierras of California. The Moors in Spain believed with Mahomet, that the *trees were fathers to the rain.*

On behalf of his western associates, recently here, Dr. Warder desired to express heartfelt thanks to the members of this Society for the courteous hospitalities that had, on every hand, been bestowed upon the visitors.

Hon. Marshall P. Wilder, as President of the American Pomological Society, expressed his gratification at the elegant preparations made for the reception and accommodation of that Society during its meeting in this city, from the 14th to the 16th of September, and especially for the banquet given it by the Horticultural Society.

The polls were closed at eighteen minutes past twelve o'clock, and the Committee to receive, assort, and count the votes, reported the whole number to be fifty-three, and that all the persons whose names were on the ticket presented by the Nominating Committee were chosen. These persons were, agreeably to the Constitution and By-Laws, declared by the President to have a majority of votes, and to be elected Officers and Standing Committees of the Society for the year 1882.

Adjourned to Saturday, November 5.

BUSINESS MEETING.

Saturday, November 5, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair.

The President, as Chairman of the Executive Committee, reported a recommendation that the appropriations for Prizes, and for the Committees on the Library, on Publication and Discussion, and of Arrangements, for 1882, be the same as the present year, viz. :—

For Prizes, ...	$3,050
For the Library Committee, for the purchase of magazines and newspapers, binding of books, and incidental expenses of the Committee, .	200

For the Committee on Publication and Discussion, ... $150
For the expenses of the Committee of Arrangements, ... 250

The Report was accepted, and, agreeably to the Constitution and By-Laws, was laid over until the stated meeting in January.

Hon. Marshall P. Wilder appropriately announced the decease of the Hon. John Amory Lowell, a son of the late Hon. John Lowell, who presided at the first meeting held to form this Society, and himself an Original Member and a benefactor of the Society, and moved the appointment of a committee to prepare memorial resolutions. The motion was carried, and the chair appointed, as that Committee, Mr. Wilder, William Gray, Jr., and C. H. B. Breck.

Mr. Wilder, as Chairman of the Committee to prepare resolutions in memory of Samuel Downer, made the following report: —

The undersigned, a Committee to whom was referred the duty of preparing resolutions in regard to the memory of Samuel Downer, respectfully report the following: —

Resolved, That in the death of Samuel Downer, junior, — as his name first appears on our records, — one of our oldest Life Members, the Massachusetts Horticultural Society have to mourn the loss of a sincere friend and promoter of the objects of our association. Mr. Downer's father was one of the Founders of our institution, and his portrait, by the generosity of our lamented friend, now adorns the walls of our hall. Samuel Downer, junior, whose loss we deplore, inherited his father's love for horticulture, and retained, in excellent condition, the old homestead to the day of his death. He was himself formerly a successful cultivator, exhibiting fine specimens of fruits, particularly of the pear, and was present at the celebration of the Semi-Centennial Anniversary of the Society.

Mr. Downer was also an upright, energetic, and enterprising merchant, the founder and proprietor of the extensive kerosene works at South Boston, and to him, more than to any other man, are the public of New England, if not the whole country, indebted for the introduction and general use of this manufacture. He was not only a man of enterprise, but felt a lively interest in the welfare of society. He founded the Melville Gardens, at Downer's Landing, from benevolent motives, and from a desire for a place of recrea-

tion where all could resort without fear of meeting any but pure and good influences. This object was very near his heart, and only a few weeks before his death he expressed, to one of this Committee, his intention to make it more and more worthy of the approbation of the public. But more than this, Mr. Downer was early associated with the friends of freedom and the emancipation of the slave, and a few years ago held, at Downer's Landing, a reunion of them and the old Free-Soilers, of whom he was one, an account of which was published.

Resolved, That a copy of these proceedings be forwarded to the family of the deceased.

The report was accepted, and the resolutions were unanimously passed.

The President reported the following votes, recommended by the Executive Committee, which were unanimously passed: —

Voted, That it is the opinion of the Massachusetts Horticultural Society that the proposed arrangement between Harvard College and the City of Boston, for the joint occupancy of the Arnold Arboretum, will give to the City of Boston, and the whole country, a free educational institution of great value, through which the popular taste for the cultivation and study of trees and the science of Forestry, will be fostered and increased.

Voted, That the Secretary send a copy of the above to the Honorable the City Council of the City of Boston.

The following named persons, having been recommended by the Executive Committee, were, on ballot, duly elected members of the Society.

Thomas Strahan, of Chelsea.
Christopher H. Starr, of Boston.
Rev. B. Judkins, of West Dedham.
Henry Woods, of Dorchester.
S. F. Terwilliger, of Saratoga Springs, N. Y.
Hon. James P. Ray, of Franklin.
Frank B. Ray, " "
Hon. Joseph G. Ray, " "
Edgar K. Ray, " "
James F. Ray, " "
William F. Ray, " "
Charles J. Lee, of Dorchester.

Adjourned to Saturday, December 3.

BUSINESS MEETING.

SATURDAY, December 3, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, Hon. Francis B. Hayes, President, in the chair.

Hon. Marshall P. Wilder, Chairman of the Committee to prepare resolutions in memory of Hon. John Amory Lowell, made the following Report:

The Committee to whom was referred the duty of preparing resolutions in regard to the decease of the Hon. John Amory Lowell, present the following:

Resolved, That in the death of John Amory Lowell, this Society has lost one of its oldest and most highly respected associates—one of the Original Members, who subscribed before its organization on the 17th of March, 1829—and the worthy son of him who did so much to advance its interests and the agriculture and horticulture of New England.

Resolved, That we shall ever cherish in our memories the recollection of Mr. Lowell's interest in the objects of this Society, his excellent character, his eminent usefulness, and his generous impulses in promoting the happiness of his fellow men. As one of the distinguished promoters of New England manufactures, the custodian of the funds of the Lowell Institute, the benefactor himself to our own and other associations, his name will long be cherished; and not only for these, but for his generous and conscientious devotion to the best interests of our city, state, and country, and of humanity,—an upright man, a Christian gentleman, and a most useful citizen.

Resolved, That these proceedings be entered on our records, and that a copy thereof be sent to the family of the deceased.

MARSHALL P. WILDER,
Chairman of Committee.

President Hayes said that he was most happy to bear his tribute to the excellence of Mr. Lowell's character. Before his admission

to the bar, and since then, he had been acquainted with Mr. Lowell, and had the opportunity of knowing him and what subjects he was most deeply interested in. He knew him as a business man, as a donor to our benevolent and scientific institutions, as one of the chief pillars and benefactors of the Church of King's Chapel, and a most valuable member of the community. He not only took a deep interest in horticulture, but was himself an eminent botanist, having a large herbarium of his own collecting. By his will he bequeathed $20,000 to the Botanic Garden connected with Harvard College. For many years he had been one of the Fellows of the College, and it is through his services and his interest in the Botanic Garden that it occupies its proud position, with the first botanist in the world at its head.

Mr. Wilder said that the Hon. John Lowell, the father of John Amory Lowell, presided at the first meeting held to form this Society; and his father, Judge John Lowell, was well known for his rural tastes, and had a garden in Roxbury which was inherited by his son. John Amory Lowell inherited a taste for horticulture from his father and grandfather, but had not time to practise it, and therefore presented his collection of plants and his horticultural and botanical library to the Botanic Garden. His heart was always open to appeals in behalf of every good work.

Charles M. Hovey said that he was happy to be present, and to have the opportunity to express his concurrence in the resolutions, which express the sentiments of the Society. To Mr. Lowell, whose donation to the Society was made at a time when its resources had been heavily taxed by the erection of the first Horticultural Hall, we are indebted for much of its prosperity. Mr. Lowell was the son of one of our most enthusiastic horticulturists, who contributed to the Magazine of Horticulture, established by Mr. Hovey, and whose choice collection of plants Mr. Hovey looked over with him but a short time before his death. The donations of the son to the Botanic Garden, at Cambridge, have been such as to enable that institution to maintain its high position. Mr. Hovey congratulated the Society that it had been aided by such a man, for whose memory we shall always retain a grateful respect.

The resolutions were unanimously passed.

The Annual Report of the Committee on Plants and Flowers

was read by William H. Spooner, Chairman, accepted, and referred to the Committee on Publication.

On motion of Mr. Spooner, it was unanimously

Voted, That the Prospective Prize of $40 for the best Seedling Flowering or Foliage plant (other than Rose, Camellia, Azalea Indica, Tree Pæony, Hardy Rhododendron, or Hardy Azalea), be awarded to James F. C. Hyde, for his Seedling Gladiolus, Hyde's White, as recommended in the Report of the Committee on Plants and Flowers.

The Annual Report of the Committee on Fruits, was read by E. W. Wood, Chairman.

The Annual Report of the Committee on Vegetables, was read by Charles N. Brackett, Chairman.

The Annual Report of the Committee on Publication and Discussion, was read by Benjamin G. Smith, Chairman.

John Robinson, from the Library Committee, read the Annual Report of that Committee.

Robert Manning read his Annual Report as Secretary and Librarian.

These Reports were severally accepted and referred to the Committee on Publication.

The Chairman of the Committee on Gardens, asked further time to prepare his Annual Report, which was granted.

The President reported from the Executive Committee the List of Prizes to be offered for the year 1882, with the approval of that Committee. The list was laid on the table for examination by the members of the Society.

George B. Kelly, of Jamaica Plain,

having been recommended by the Executive Committee was, on ballot, duly elected a member of the Society.

Adjourned to Saturday, December 10.

BUSINESS MEETING.

SATURDAY, December 10, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, Hon. Francis B. Hayes, President, in the chair.

John O. Sargent, of Lenox, was proposed by the President, as a Life Member of the Society.

E. W. Wood, from the Committee of Arrangements, read the Annual Report of that Committee.

John G. Barker, Chairman of the Committee on Gardens, read the Annual Report of that Committee.

These reports were severally accepted and referred to the Committee on Publication.

The Schedule of Prizes for 1882, presented at the last meeting and then laid on the table, was taken up and unanimously adopted and referred to the Committee on Publication.

The President expressed his gratification at the manner in which the annual reports of the various committees, which were now concluded, had been made. They were not only promptly presented, but were admirably prepared. He spoke particularly of the commendation by the Garden Committee of Mr. Moore's peach orchard and vineyard, which he had visited himself. He could join the Committee in speaking of Mr. Moore's place as a model of neatness and good cultivation.

Benjamin G. Smith, Chairman of the Committee on Publication and Discussion, announced that the series of meetings for discussion the present season, would begin on the next Saturday with the reading of a Prize Essay by Mrs. T. L. Nelson, of Worcester, on "Our Native Plants, Adapted for Winter Culture, for their Flowers," and that on the succeeding Saturday, John Robinson, Professor of Botany and Vegetable Physiology to the Society, would read a Paper on "Ornamental Arboriculture."

John B. Moore, a member of the Committee on Publication and Discussion, added that the Committee hoped to make the discussions better than ever before, but that to do this they must have the coöperation of the members of the Society. Dr. Goessman, the Professor of Chemistry at the Agricultural College, had been invited to lecture, and the Committee trusted that during the winter we should have the pleasure of hearing from him.

The Secretary read the following correspondence: —

MASSACHUSETTS HORTICULTURAL SOCIETY,
BOSTON, October 17, 1881.

Dear Sir: Some time ago I had the honor to send to the Royal Horticultural Society a copy of the History of this Society, which, Dr. Masters wrote me, was placed in the Lindley Library. I have thought that you might like to add to this volume the other publications of this Society and, therefore, send a set as far as they can be obtained. I beg that they may be received as a token of the regard entertained by this Society for the Royal Horticultural Society of London—the prototype and exemplar of all horticultural societies—to which we, in common with all other similar associations, feel under the deepest obligations.

We have in our Library the quarto Transactions of the Horticultural Society of London, complete, and of the octavo Journal the first nine volumes. Dr. Masters wrote me that the supply of the latter, in the hands of the Society, is quite exhausted, but if you can refer me to some bookseller who would be most likely to secure the succeeding parts, and also inform me what has been published since 1854 and is necessary to complete our set up to the present time, you would confer a favor on this Society.

Can you tell me how many parts of Lindley's Folia Orchidacea were published? We have eight parts, unbound, and supposed it to be complete, but I observe that the last edition of Pritzel's Thesaurus says *nine* parts. I should like, before binding, either to complete it or to be certain that there is no more.

Is Dr. Masters's Vegetable Teratology out of print? We ordered a copy nearly two years ago, but have never got it.

I hope I have not taken too great a liberty in troubling you with these inquiries, but trust you will sympathize with my desire to make our library as complete as possible. It is already the best horticultural library in this country, and, so far as we are informed, is excelled by few in Europe. I can hardly hope to be able to make you any return for the favors I ask of you, but shall be very glad to if it is ever in my power.

Yours respectfully,
ROBERT MANNING,
Secretary and Librarian.

REV. GEORGE HENSLOW, *Librarian Lindley Library.*

ROYAL HORTICULTURAL SOCIETY,
KENSINGTON, S. W., November 21, 1881.

Dear Sir: I had the gratification, as Foreign Secretary, to read your letter of the 17th ult. to the Rev. George Henslow, Librarian of the Lindley Library, to the Council of the Society at its last meeting, and I was instructed in reply to express the cordial thanks of the Council of the Society and of the Trustees of the Lindley Library for your valuable donation of books. The Council is touched at the cordial manner in which you are pleased to speak of the Society and its past work, and is anxious to maintain and develop friendly relations with your Society. A new part of the Journal will be sent to you shortly, and I am to bring under your notice the fact that the Society is in a position to supply you with grafts (at the proper season), tubers of begonias, and roots and seeds of other ornamental and useful plants. Application for these should be made to the Superintendent of the Society's Garden, at Turnham Green, near London.

Five volumes of the New Series of the Journal have been published; Vol. 1, 1866; Vol. 2, 1870; Vol. 3, 1872; and Vols. 4 and 5, in 1879. Enquiries are being made for them, and if they can be procured, they shall be sent to you.

There is, I fear, little or no chance of getting the ninth part of the Folia Orchidacea, as the copies were, I believe, destroyed as waste paper.

Dr. Masters's Teratology was published by the Ray Society, and is, I believe, out of print. There is little or no chance of getting it except at an auction.

I may add that I shall be pleased to be of service to the Society or to yourself, and am sir,

Faithfully yours,
MAXWELL T. MASTERS,
Hon. Foreign Secretary,
Royal Hort. Society.

To ROBERT MANNING, ESQ.

The Secretary also announced the reception of a letter from Dr. Hermann Knoblauch, President of the Imperial Leopold-Carolinian German Academy of Naturalists, at Halle, Prussia, asking an exchange of publications.

Adjourned to Saturday, December 17.

BUSINESS MEETING.

Saturday, December 17, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair. No business being brought before the meeting it

Adjourned to Saturday, December 24.

MEETING FOR DISCUSSION.

This was opened by the reading of the following Prize Essay by the author:

Our Native Plants adapted for Winter Culture for their Flowers.

BY MRS. T. L. NELSON, OF WORCESTER.

When summer flowers have bloomed and faded, and the aster and golden-rod are in their glory,—when on the hills the gorgeous tints of autumn are glowing and shimmering in the hazy atmosphere, we begin to think of the time when there will be nothing outside to even remind us of leaf and flower; and then we gather, if we will—for nature is lavish of her treasures,—our winter stores. What visions of the past rise before us, when all out-doors is bound in snow and ice, at the sight of a "winter greenery," as we sit before the fire and our gaze dreamily wanders toward the place where it is sitting. Again we are in the woods enjoying ourselves. At our feet sparkles and dashes the little brook, and, by its side, moss, lichen, and fern are beautiful as ever; we hear the rustle of the leaves over our heads, and it seems so real that it is hard to break the spell.

But all this must be gathered before it can be enjoyed. Meadows, swamps, fields, and woods are to be visited and carefully searched, for in them, oftentimes only indicated by a dried leaf or berry, are the plants, bulbs, and tubers which are resting, and, therefore, the more to be sought after for winter bloom,—for I have found, by

carefully watching, that plants which bloom in spring and early summer are more to be relied upon for flowers in winter than later blooming ones. Of course you know that, in cultivated flowers, we select the largest and strongest bulbs and roots for winter blooming. If we wish to grow lilies for winter flowering, we select the finest bulbs, for in them is stored the perfect leaf and blossom. So in our selection of native plants—select the strongest and best, for some will fail. Surely no florist expects to bloom all the plants and bulbs that he puts in his houses; and for some unexplained reason some—in fact many—refuse to give us flowers in winter, yet they bloom abundantly in their native soil and season. I find from experience that most native plants can be grown successfully in light woody soil, with a mixture of meadow moss; and also that flat wire baskets or dishes, not more than three inches in depth, lined with moss, and filled with earth, in which to set the plants, are better than close dishes. After they are filled set them in a dish or saucer with water in it. In this way, the moss acts as an absorbent, and supplies water as the plants require it. Moss on the surface, between the plants, is useful in counteracting the dryness of the air in our living rooms—for I take it for granted that native plants are to adorn and beautify our homes; they are not often found in greenhouses. In speaking of the depth of the dishes, I am assuming that only small-growing plants are likely to be cultivated.

And now we will take a look after plants.

First, let us gather *Epigœa repens* (Trailing Arbutus). It ought to be gathered as late as possible, for the buds must be formed before gathered, and then it is not necessary to have much root; only keep the plants moist and close. I have not succeeded often in flowering it, except in a fernery or wardian case, but it is almost sure to bloom under glass, if properly gathered; and how beautiful it is we all know.

Hepatica triloba and *H. acutiloba* have thick, persistent leaves, and also form their buds in autumn. I find them among the surest of winter blooming plants; in fact, they bloom in all places—in ferneries or dishes, sun or shade, their pure little blossoms appear almost before we know, or dare expect it.

Sanguinaria Canadensis (Blood-root) can be easily flowered, and although the foliage is coarse, as the flower comes before the leaf is grown, and as the plants can be forced but once, the foliage

is of no consequence. The flower is pure white, and exquisitely beautiful.

Calla palustris (Water Arum), our wild calla, growing in muddy and swampy places, is really an attractive plant, and, having a tuber like *Richardia Æthiopica*, can be easily grown, and with similar treatment. In Massachusetts it is herbaceous, and blooms in early summer.

Next we will look after *Arisæma triphyllum* (Jack-in-the-pulpit), which forces finely. You can readily find it by its bunch of intense scarlet berries. On taking away the old stalk, you will find the bud ready to start when you are ready to start it. I have seen exceedingly fine plants of it in winter; and with their stately leaves and blossom, they are really very beautiful. They grow equally as well in open dishes or baskets as in a fernery.

Sarracenia purpurea (American Pitcher-plant) is easily grown in wet, peaty moss, and, aside from the beauty of its "pitchers" (which you know are really the leaves of the plant), has a very curious flower. It is found in swamps and low, moist ground.

Erythronium Americanum (Yellow Dog-tooth Violet) bears cultivation well, but will not bear the sun. It is one of the earliest spring flowers and is desirable, as both flower and foliage are beautiful. The foliage varies in marking; sometimes it is very much spotted, and again almost as entirely green.

The lovely *Houstonia cœrulea* has never been sung by poets, but nevertheless it is lovely beyond compare. Pure and innocent, it raises its sweet little face to our gaze, and we think of all that is good as we look down upon it. I gathered "alpine daisy" on Mount Washington, and admired its lovely blossoms, but, at the time, remarked to a friend, that it was no more beautiful than our little neglected *Houstonia*. This flower is also among the earliest spring flowers. What would be easier, as it grows in clumps, than to take up a piece or clump, and not disturb the roots, and when it has rested let it bloom in winter?

Clintonia borealis has a greenish yellow, bell-shaped, lily-like flower, which can be cultivated with considerable success, and all must be pleased who do succeed.

The *Trilliums* are easily grown if you mark the place where they are before the leaves are gone, and take them up after the foliage has ripened. There are at least three species,— *T. grandiflorum*, *T. erythrocarpum* (Painted Trillium), and *T. erectum*,

and they are all so beautiful it is a wonder more are not bloomed in winter.

Then the *Cypripediums*. I have three species growing in my garden,— *C. parviflorum* (small yellow), *C. pubescens* (large yellow), and *C. spectabile* (pink, or pink and white). I have never flowered them in winter, but they adapt themselves so readily to the garden I take it for granted there can be no difficulty in so doing. I know that *C. spectabile* forms its buds late in the autumn under the old stalk, precisely as *Arisæma* buds are found, and that shows conclusively that one can be grown as well as the other.

Coptis trifolia (Gold-thread) is very attractive, with its dark green leaves that shine in the sun as if wet with dew. The flower is pure white, and contrasts admirably with the beautiful foliage.

Mitchella repens (Partridge berry) is one of the most charming of all our winter friends, for we get the persistent foliage, and bright scarlet berries; and then it blooms finely in the fernery (and oftentimes out), and we have a combination rarely found, and doubly welcome for its beauty and rarity.

Pyrola (Wintergreen) buds in autumn, and blooms well.

Violets are so abundant in variety, that we have only to choose for ourselves; but with them, and in fact all that I have mentioned, we must make a study of their individual habits, and learn how much sun, light, moisture, etc., they require, and give them as fair a chance as the flowers we take from our gardens. I do not believe our native plants are harder to grow, or need more rest and care, than ordinary plants; but do you think we should take as much pains to grow one of our native Cypripediums as we do some of the imported species that are not nearly as beautiful?

I have no doubt that many of our native shrubs are as well worth growing, both for pleasure and profit, as the Deutzias, Spiræas, and Azaleas. *Amelanchier Canadensis* (Shad bush) grows and flowers so freely, there can be no doubt about cultivating it.

Leucothoë racemosa, if only for its mythical relation, might be brought into notice. And what more lovely flower in winter than *Rhodora Canadensis*, with its rose-purple flowers in umbel-like clusters, blooming before the leaves appear.

> "Rhodora! if the sages ask thee why
> This charm is wasted on the earth and sky,
> Tell them, dear, that if eyes were made for seeing,
> Then Beauty is its own excuse for being:

Why thou wert there, O rival of the rose!
I never thought to ask, I never knew:
But, in my simple ignorance, suppose
The selfsame Power that brought me there brought you."

Azalea nudiflora, our pink or purple wild Azalea, grows well in our gardens, and blooms when the plants are small, as does, also, *A. viscosa*, the white variety. Both varieties are growing and blooming finely in two gardens near me, where there is more or less clay, which goes to show that they are not particular as to soil. What, therefore, is to hinder growing them under glass as well as the imported species? I think, however, they should be taken up in the spring and grown through the summer and autumn, in order to obtain good results.

Rhododendron maximum adapts itself readily to our gardens, grows as well as the kinds we cultivate in them, and is more hardy. Why not try and grow it for winter bloom?

And so the list might be extended to be quite as long as the list of the cultivated plants that will bloom well in winter. You know, of course, I do not mean stove plants, but only such varieties as are ordinarily grown in winter. Fashion is all-powerful, and if we could make it more fashionable to wear, or to have on our tables, native violets than the foreign varieties, how the greenhouses and florists' windows would overflow with the modest flowers. Or the beautiful Azaleas, Arbutus, or Sanguinaria, instead of Marigolds and Sunflowers. As it is, "somebody" starts a fashion and everybody follows it. All the time we look eagerly for "novelties" from any source, at home or abroad, and too often we pay dearly for very little. Why, then, do we not begin at home, and see what can be done with our native plants?

Discussion.

Mrs. C. N. S. Horner was called on to open the discussion on the essay, and said that the subject is one which has always interested her. There are a large number of native flowers which will repay cultivation. The *Campanula rotundifolia* (Harebell) is easily cultivated, and flowers from June to November. The *Asclepias tuberosa* (Butterfly Weed) is very satisfactory. Among native plants, which she had successfully cultivated in winter, are *Sanguinaria Canadensis*, *Cypripedium pubescens*, *Goodyera pubescens* and *G. repens*, *Hepatica triloba*, *Epigæa repens*, *Coptis trifolia*, and

Viola Canadensis and other violets. The *Sarracenia purpurea* does very nicely; she had had a plant, cultivated in the house in winter, with five flowers.

E. H. Hitchings said that many have tried to cultivate the *Epigæa repens* (Trailing Arbutus), but it succeeds for only a year or two. The *Hepatica* is very easily cultivated. The speaker exhibited a plant which he found in Stoneham woods on the 5th instant—one of five which were in flower. The plant shown had the remains of three flowers, one of which probably bloomed in October and the others in November, and several buds which would probably open in a month, making the season of bloom about three months. Wild flowers were in bloom in the woods from April, 1879, to November, 1880, inclusive. Some wild flowers are improved by cultivation, among which are the *Sanguinaria Canadensis*, *Lobelia cardinalis*, and *Trillium grandiflorum*. Some, such as the Painted Trillium, are quite as handsome in fruit as in flower; and the fruit of the Nodding Trillium is more beautiful than the flower. The *Pyrolas* and *Chimaphilas* do well in cultivation, as do also *Goodyera pubescens* and *G. repens* and *Cypripedium spectabile*. Mr. Hitchings said he had several times transplanted the *Orchis spectabilis* successfully, and also *Tiarella cordifolia*, and many other native plants. *Liparis liliifolia* is one of the most delicate of the orchids; he has cultivated it in the house for several years, and it blooms every season. *Geranium Robertianum* does well in the house. *Andromeda polifolia* and *Ledum latifolium* are shrubs which succeed well under cultivation. *Kalmia glauca* is handsomer than either of the other species; it is found growing with the two preceding. *Hibiscus Moscheutos* does well in the garden. *Habenaria blephariglottis*, *H. ciliaris*, and *Calypso borealis* have been cultivated by Dr. Walcott. Mr. Hitchings closed by saying that he would like to get young people interested in collecting and cultivating native flowers.

Hon. Marshall P. Wilder expressed much pleasure in having the meeting opened by a lady, and hoped she would be successful in her efforts to inspire others with a love for the cultivation of native plants, that they might enjoy the pursuits in which she took so much pleasure. While we have collected plants from all parts of the world, and agents from all parts of the world have been here to collect our native plants, we have been tardy in cultivating them. The heat, light, soil, etc., wanted by these plants, are the secrets

of nature, which we must learn before we can cultivate them successfully. He was glad to hear the essayist speak of the influence of fashion on the taste for flowers. Some of the most beautiful plants have been fashionable, and afterwards have been obliged to make room for other favorites. Among these is the camellia, of which Mr. Hovey would remember the time when a single flower would bring a dollar, and afterwards it was set aside as coarse, but it is now in favor again. The case is the same with the azalea. He would like to speak of the moral influence of the cultivation of flowers; he hoped when done with the cultivation of flowers on earth, to resume it in a better world.

Rev. A. B. Muzzey said he was much interested in the subject announced for today's discussion. Our native plants have been strangely neglected. When he was in college he took long summer walks in the woods and fields every Saturday with Professor Nuttall, who not only possessed a scientific knowledge of our native flowers, but was full of enthusiasm in their study, and felt all the pleasure of a boy in these excursions. Mr. Muzzey not only collected a herbarium, but brought home plants, which proved capable of house culture. He was amazed at the number and variety of flowers which they found. We have only to go a few miles to find under our feet species we have never seen before. Wild flowers are common, but so is light, and it is a sin against nature to shut it out of our houses; and health, which might otherwise suffer, is promoted by the search for these wild flowers.

Charles M. Hovey expressed much pleasure in having the subject of the cultivation of native flowers brought up for discussion, and congratulated the Committee on their selection. He had been writing on the subject for the last five or six years in "The Garden." When in England a few years ago he visited George F. Wilson's grounds at Weybridge three times—once in March and twice in April. He had been puzzled, when reading in the English magazines about severe frosts, to know how plants could survive them, but he found *Cyclamen hederifolium* and *C. Coum*, with the leaves and flowers frozen quite hard without injury, when the temperature was eight degrees below freezing; and the reason that they were not killed was that the frost was taken out by the atmosphere, under a cloudy sky, before the sun could reach them. After a snow-storm, the cyclamens were just as beautiful as ever. Besides these plants, Mr. Wilson showed him *Hepatica angulosa*, and vari-

ous primroses ; among the latter some choice seedlings, covered with bell glasses, and he took more interest in these than in his collection of greenhouse plants. At an exhibition of the London Horticultural Society, one of the most prominent objects was a collection of twenty-four varieties of primroses,—Himalayan and others. The English love all these little plants, but here we want something large and showy, like the sunflower, which is the fashionable flower at Newport. The camellia lost its popularity as much by the peculiarities of trade as from any other cause, and the price fell down to a low rate. When the florists could buy pinks and similar flowers, which would keep several days, they did not think it worth while to purchase the expensive camellia ; but this helped to bring roses into fashion. Boston roses have heretofore supplied the New York market. For a long time buyers have been satisfied with Bon Silene and Safrano ; but now they want Maréchal Niel, Perle des Jardins, and Gen. Jacqueminot.

Among the native flowers mentioned by the essayist, there are but two or three which the speaker has not described. *Rhexia Virginica*, which was not mentioned, is one of the most desirable. The *Erythronium*, or Dog-tooth Violet, covers the ground in his nursery. The *Asclepias tuberosa*, *Sanguinaria Canadensis*, and *Hibiscus Moscheutos* are easily cultivated; and are among the most desirable native plants. He made botanical excursions in his younger days, influenced by Professor Nuttall, and first found the blood-root in 1829 or 1830 ; indeed, all these native plants passed through his hands, and he tried to get others to cultivate them. He had studied the botany of the shores of Buzzard's Bay, and found a great variety of plants there,—in the limited space of six acres he found growing one hundred and seventy-five species and varieties. The native asters were not mentioned by the essayist, and have been but little cultivated. *Aster spectabilis* grows about a foot high, and is as beautiful as a Cineraria. Ferns, and the *Mitchella repens*, can be grown in the house, and are really very pretty objects during winter.

William Falconer (of the Cambridge Botanic Garden), did not think our wild flowers, excepting the Lily of the Valley and *Cypripedium spectabile*, were very amenable to winter forcing. Many of them, as violets and hepaticas, make excellent border plants, but they require to be brought slowly into bloom. Speaking of *Cypripediums*, he mentioned that though *C. spectabile* is the one usually

forced, the others are as useful in that direction; in fact, they come earlier into flower. Some orchids, as *Calypso*, although very pretty, are not generally satisactory as out-door garden plants; but, with pot culture, they are first rate. In answer to Mr. Hitchings, he said that *Cypripedium acaule* does well in cultivation for two or three years, but is liable to die out. With reference to Mr. Hovey's remarks about our wild asters, he said that quite a demand has lately arisen in Europe for American asters. He warmly recommended the use of our wild plants as garden flowers, and called attention to the handsome displays of our native lilies in the rhododendron beds of Mr. Sargent, at Brookline, and Mr. Hunnewell, at Wellesley.

Rev. F. L. Capen said that when a boy he used, in driving the cows to pasture, to look out for the columbine and crowfoot. At Jacksonville, Florida, the number and gorgeousness of the wild flowers, is remarkable; he had noticed particularly a flower of a purple color, but otherwise resembling a golden-rod. What we call native flowers are exotics abroad, and our exotics are natives elsewhere. When rare flowers become common the masses will take them. He asked if flowers of the same species were collected and planted together, whether they would not sport and produce new and fine varieties.

Mr. Wilder said that such changes would not properly be called sports, but crosses. Sporting is a change of color of part of the flowers on the same plant, like the Abby Tryphosa Wilder camellia, which originated in a sport on the Mrs. Abby Wilder. The distinction between sports and crosses, or hybrids, is often overlooked. As to species, it is sometimes difficult to say what are species. Once it would have been thought irreverent to attempt to cross genera, but he had crossed the *Lilium lancifolium* with *Gloriosa superba*.

John B. Moore desired to suggest one practical thing, which was to get sweet-brier plants and pot in the spring, and bloom them in the winter. They must have rest, and after growing through the summer, should be placed in a cool cellar till about this time. They should have but little water until they get some leaves; most amateurs injure plants by saturating the soil with water when there are no leaves to evaporate it. If properly treated, the plants will be covered with bunches of bloom, and the fragrance of both flowers and foliage is delightful. The plants are abundant in pastures; young, vigorous ones should be chosen.

Leander Wetherell said that horticulture is the art of improving nature, and it has improved almost every species of plant. Wild flowers are very beautiful; he has often roamed over the woods in search of them, but he thought we have in our gardens what are more beautiful than natives, and that this going back to nature is a retrogression. He alluded to the difficulty of learning plant names, and said that the Society is much indebted to the ladies for the exhibitions of native plants.

J. W. Manning said that he had collected in his nursery four or five hundred varieties of native plants, but had found little demand for them. The *Rhododendron maximum* transplants very easily if small plants are chosen, and the *Kalmia latifolia* also. Mr. Dawson, at the Arnold Arboretum, has been successful in raising both these from seed. The *Kalmia latifolia* is common in the woods, but not much cultivated. It will grow in almost any soil. He knows a dozen plants in gardens in Reading which have been growing for fifteen years.

Mr. Hovey said there are people who will give more for the eglantine or sweet-brier, than for the most improved rose. In Marion, there stands a cedar tree, two hundred and fifty or three hundred years old; it is fifty feet high, and the arms spread fifty feet. He never saw anything that pleased him so much, entirely covered as it was, trunk and branch, with moss; and so we love these wild flowers for their native and ever beautiful and varied forms.

It was announced that on the next Saturday, John Robinson, Professor of Botany and Vegetable Physiology to the Society, would read a paper on "Ornamental Arboriculture."

BUSINESS MEETING.

SATURDAY, December 24, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair.

John B. Moore, from the Committee on Publication and Discussion, presented the following vote:

Voted, That there be offered a Prospective Prize of Fifty Dollars

for the best Essay on the Effect of Chemical Fertilizers on Fruits and Plants, as influencing their growth and quality, the essay to give a detailed account of actual experiments and results, during the next three years; the prize to be awarded at the end of the year 1884.

The vote was referred to the Executive Committee.

Adjourned to Saturday, December 31.

MEETING FOR DISCUSSION.

This was opened by the reading of the following paper, by the Professor of Botany and Vegetable Physiology:

Essay on Ornamental Arboriculture.

By John Robinson, of Salem.

In attempting to sketch the history of ornamental arboriculture in this country, it soon becomes evident that the subject will be exhausted for want of actual examples, rather than for lack of records of what has been accomplished. It is only necessary to read the works of Downing, or the articles in the early horticultural magazines, to discover that ornamental tree culture received little attention in New England, compared with that bestowed upon it in the vicinity of Philadelphia, or along the valley of the Hudson. This may, in a great measure, be attributed to the fact that the early horticulturists of this neighborhood, the founders of the Massachusetts Horticultural Society, were chiefly interested in the cultivation of fruits and flowers. In organizing this Society, they formed the horticultural centre of New England, whose steadily increasing influence has given the key-note to the horticulture of this region. We find, therefore, established near Boston, a spirit of competition in fine fruits and rare flowers, to the exclusion, until very recently, of any attempts to learn the secrets of tree culture.

The cultivation of ornamental trees has, of course, received occasional attention in individual cases for more than two centuries, as the magnificent shade trees in the streets of some of our oldest towns, notably those in the valley of the Connecticut river, bear testimony, as well as those upon a few private estates.

The first landscape gardener to issue a special catalogue of hardy trees and shrubs suitable for our climate, was André Parmentier, of Brooklyn, L. I. He also established a scientifically arranged garden, and was the first in the United States to form a plantation illustrating the natural style of laying out grounds. At the opening of the present century, among the prominent estates where tree culture had received special attention, were Woodlands, the residence of William Hamilton, near Philadelphia; Clermont, the Hudson River estate of Chancellor Livingston, and Waltham House, near Boston, the residence of Hon. Theodore Lyman. A little later in this vicinity, the estates of Thomas Perkins and Thomas Lee, in Brookline, and John P. Cushing, of Watertown, were noticeable.

Recently, arboriculturists here have fallen into a rather too servile imitation of European examples, with the use of European trees or plants, better suited to the climate of Europe than to our own, where experiments should be based upon a careful study of trees and methods better adapted to our climate and soil.

To make a plantation which shall contain a desirable variety of trees, adapted to the situation in which they are to grow, and calculated to remain a lasting benefit, requires a knowledge of physical geography, especially that which relates to the influence of climates upon plant life. Modern science teaches us that nature has, in the countless ages of time, evolved for each and every climate a class of plants especially adapted to the influences by which they are surrounded. She has, in particular instances, by gradual and imperceptible changes, adapted groups of individuals of a species to flourish in a climate differing totally from that in which other individuals of the same species are found. Hence, individuals taken from one locality may be perfectly hardy, while other individuals of the same species, from other localities, fail utterly to endure our climate. For example, the small leaved magnolia, taken from Massachusetts or the Middle States, is perfectly hardy here, while plants of the same species brought from Florida, would not survive a single Massachusetts winter.

Under the present theory of the distribution of species, based upon a careful study of geology, our existing flora is considered, with a few rare exceptions, to have been disseminated from a common centre at the north, and to be the result of the inexorable law of the survival of the fittest species or individuals for the places

they were forced to occupy. It is useless, therefore, to attempt to remove a plant from a climate to which its ancestors have, for ages of time, become inured, and expect it to thrive in a different one. We should not give a moment's thought to a proposition to plant the *Victoria regia* of the Amazon, in the pond on Boston Common; yet, with the trees, attempts hardly less absurd have been persisted in, simply because the climatic conditions of the regions from which it has been attempted to introduce them, were not studied; the latitude from which they were taken, only being considered.

A glance at a map of the northern hemisphere, shows us that the configuration of the east coast of the continent of Asia is quite similar to that of eastern North America, and that in the Pacific ocean, as well as in the Atlantic, a warm ocean current, commencing at the southwest, and flowing across the ocean, disappears at the northeast. Therefore, the coast climate of one continent may be expected to closely resemble the corresponding coast climate of the other, which, in point of fact, it does; the climate of northeastern Asia, resembling that of New England and eastern North America, while that of California and Oregon is not unlike the climate of western Europe. There are also, in various portions of the globe, certain conditions which tend to produce local climates quite different from the surrounding regions, and, in some respects, not unlike our own. Some such districts are already known to us, and others may yet be discovered.

Working upon these facts, we may arrange in order the regions from which we are obliged to select trees for cultivation in New England, and beyond which, unless in rare, exceptional cases, it is useless to go to add to our collections.

This order is as follows:

I. The Alleghanian region of North America, which includes New England and Canada, and extends southward to the mountains of northern Georgia and Alabama, and broadly to the eastern base of the Rocky Mountains.

II. The eastern coast of Asia, north of about latitude 38, and including northern China, Manchooria, and northern Japan.

III. Regions with climates not sufficiently differing from that of New England to interfere with the adaptability of the plants of such regions to our climate. The Central Rocky Mountain region, portions of Siberia, the Caucasus, Toorkistan, and possibly Thibet, are illustrations.

IV. To the plants from the regions already indicated may be added certain cosmopolitan species, which inhabit widely different localities and seem to flourish everywhere in the old world.

To the first of these regions, the Alleghanian, too much attention cannot be paid, for here, in a comparatively limited area, is found a more extensive collection, in number of species, of desirable forest trees than is furnished by any region of similar size in the temperate zone, with the possible exception of Japan. There are more species than is possessed by the whole continent of Europe. Neither do the trees from this region require to be experimented with to ascertain their fitness for cultivation in our grounds, for they are of our own flora. But before entering upon the southern Alleghany mountain region, where there are many species not natives of New England, we need go no farther than our own woods to find many of the most desirable trees to plant for ornament; trees which in Europe have been eagerly sought for two centuries as great prizes, but which, in our own country, have been too long neglected for general planting. What tree is more desirable, in every way, than the Sugar Maple? or for single specimens more interesting than the Hickory? Our Oaks rank among the most magnificent trees in the temperate zone, while the Tupelo, Beech, Sassafras, Hornbeam, the Birches, and the Ashes, among the deciduous trees, and the White and Red Pines and Hemlock, among the evergreens, are all valuable trees for ornamental purposes. To these may be added from among the lower growing species, the Hamamelis with its November flowers; the gorgeously fruited Sumachs; the Amelanchier, too often overlooked; the Dogwoods, including the conspicuous *Cornus florida*, and the Viburnums. All these grow naturally within twenty miles of this spot. There are, besides, in the immediate neighborhood, a number of trees, which, although not suited for all soils and situations, are, nevertheless, adapted to certain localities. Among such are the American Elm which flourishes best in the alluvial river meadows, and the true White Cedar of the low swampy lands.

As previously stated, one of the greatest storehouses for tree species in the temperate zone is the region of the southern Alleghany mountains. In Pennsylvania and the mountains southward are nearly two-score of trees, which, although belonging to the same flora as our own, are not natives of Massachusetts, but are certain to succeed in our ornamental plantations.

There are five species of Magnolia, most of which are considered as rare trees in cultivation. We have the Buckeyes—the red and yellow flowered larger species, and the white flowered shrubby one; the Cladrastis or Yellow-wood, fine specimens of which are now to be seen on many of the older estates in this vicinity, and one magnificent specimen at the Botanic Garden, Cambridge, over thirty feet high, with a trunk two feet in diameter. There is the Red-bud, which, with its prodigality of deep pink flowers, presents in spring a most beautiful appearance. Among the plants of the Rose family are two species of Cratægus, one somewhat resembling the scarlet thorn; and the American Crab apple, desirable for its fragrant flowers and marketable fruit. We have the *Viburnum prunifolium*, resembling our Sheep-berry, but a larger growing tree; the *Halesia* or Silver-bell tree; and the Persimmon, whose fruit ripens in this vicinity and should be added to our garden products, and find the place it deserves upon the exhibition tables of this Society. The Virginia Fringe tree, although frequently seen in cultivation, should be more extensively planted, and the Winged and Slippery Elms and the Chinquapin are not so often seen as they deserve to be. Of the Oaks there are a large variety. Besides the eight species more or less common in the woods of this vicinity, there are five others which may be added from the region a little south of us, that are now seldom met with in cultivation here, which differ in foliage and in fruit strikingly from onr native species. Among them are the Willow oak, the Pin oak, and the Burr or Over-cup oak. This last species is likely to prove the rival of the White oak in the value of its wood for mechanical purposes, on account of its durability in exposed situations, where it resists decay seemingly longer than that of any other species. Among the conifers are the Table Mountain Pine and the Bald Cypress, both of which are perfectly hardy. To this list may, probably, be added a newly discovered Hemlock, with larger cones and longer leaves than our own, known as *Tsuga Caroliniana*, and the *Rhus cotinoides* (somewhat resembling the European Smoke tree) which has been lately rediscovered in the mountains of Alabama. From the west of this region, and yet within the limits of its flora, are the *Fraxinus quadrangulata* (Blue Ash) of Michigan, a beautiful forest tree with valuable timber, and the Western Catalpa, but recently distinguished from the southern species with which it has been confused. This

last adds to our collections, without doubt, a tree at once beautiful as an ornament, and of great value on account of its almost imperishable timber. There are also at the west the *Ulmus racemosa*, and *Carya sulcata* or Western Shag-bark Hickory, both fine trees. At the north are the Gray Pine and White Spruce, the latter one of the best of its class that we can cultivate.

Were we to stop here our choice could not be considered as a limited one, for the trees of this, our own flora, are unequalled in the temperate climate for their variety, their striking beauty, and their lasting effect for cultivation in parks, lawns, or streets, where, the work of planting once accomplished, it is important that it should last, perhaps, for centuries. It is now a matter of general knowledge that we are indebted to native trees for the beautiful effects of autumnal foliage, while those of foreign introduction are but dull and sombre when our native species are in their most gorgeous raiment. This alone is no inconsiderable argument in favor of our native trees.

The second region to which we may look with the expectation of adding extensively to our collections will be, as indicated previously, Manchooria, Northern China, and Northern Japan.

There are already in cultivation from these countries a great many valuable ornamental plants, but still more may be added. Among those familiar to us from China and Manchooria, are the Wistaria, Deutzia, and Weigela, all of which are now widely distributed in our gardens, as is also, though perhaps less extensively, the *Magnolia conspicua*. Of the trees from this region, which are likely to find their way into general cultivation as they become more accessible, are several species and garden varieties of Magnolia, a Tulip tree, the *Phellodendron Amurense*, the Chinese Tamarix, a much finer and later flowering species than the European tree, which is commonly met with in cultivation ; a Linden, a Horse Chestnut, and several Maples, one of which, a variety of *Acer Tartaricum*, bears deliciously fragrant blossoms. There is also the *Cladrastis Amurensis*, a relative of our well known Yellow-wood ; a Honey Locust, a Gymnocladus resembling the corresponding American species, a Hawthorn, two Plums, an Ash, two Birches ; a Pterocarya, which may be described as a relative of our Hickories ; besides an Oak and the Manchoorian Walnut. These are all deciduous trees. Among the conifers are the Taxodium, occasionally met with here under the name of Glyptostrobus ; the Chinese

Juniper, which much resembles our own Red Cedar; the Pseudolarix, a curious relative of the larch; and two Pines, one of which, *Pinus Bungeana*, common in the vicinity of Peking, is at once recognized by its white bark. To the west of this region, in Siberia, are the Caragana, an Elm, and *Picea obovata*, all of which are desirable trees for cultivation here.

Japan, however, can probably furnish more desirable trees for New England ornamental plantations than even the continent of Asia. Already there are many species both of woody and herbaceous plants in quite general cultivation from that country. Among the Japanese trees now known to succeed perfectly here, are several maples, including the well-named species, *Acer polymorphum*. This little tree has already won the admiration it deserves, and is rapidly finding its way into our collections in numerous varieties, some of which, when judged by the standard of beauty and their ability to withstand the hot summer sun, are much more desirable than others. Nearly allied to the maple is the *Negundo cissifolium*, and also, thoroughly tested, are the Sophora, and the curiously fruited, yellow flowered Kœlreuteria. Two Apples and the Idesia are perfectly hardy, and there may also be added a Chestnut, a Walnut, and an Alder, which have proved satisfactory, besides the *Phellodendron Japonicum*, the Zelkowa, an Ash, two Birches, and more than one Oak, which, although no doubt exists regarding their hardiness, have not yet been in cultivation here long enough to be considered as tested. Among the Japanese conifers we find an unusually large number suitable for our purposes—far more than can be obtained in any other region. Of the Pines there are three desirable species; one, the *Pinus densiflora*, has been introduced under the name of *Pinus Massoniana*, which belongs to a more southern Chinese species, not, probably, hardy with us. There are two Spruces, a Hemlock closely resembling our own, a Larch, and the Umbrella Pine (*Sciadopitys*), already thoroughly tested here. We have, besides, a long list of Retinosporas which some recent authors have placed under the old genus, Thuja. They are more nearly related to our true white cedar than any other New England species. Many of the varieties of the Retinosporas, of which there are a great number in cultivation, are very graceful and interesting plants. Of the permanency of these varieties not much can be said. Actual observation proves many of them to be but juvenile forms of well known species, which, as they grow older,

change their characters and take the normal forms. Carrière, a French writer on the Coniferæ, has happily called them the "larval forms" of the mature plants. All the Retinosporas of our gardens may probably be referred to two or three typical species, although some of the varieties may prove more permanent than others.

The cultivation of ornamental plants has been practiced in Asiatic countries for a great length of time, and, hence more garden varieties may be expected from this region than from almost any other. In fact, with many plants from these countries, it is often difficult to determine what is the typical form of the species, or its original habitat.

Of the Asiatic conifers, the Gingko has probably been cultivated here longer than any other species, the tree on Boston Common, being, at least, fifty years old. It has usually been considered a native of Japan, but, recently, this has been doubted. Dr. Masters, in a paper "On the Conifers of Japan" (Linn Soc. Jour., Bot., Vol. XVIII., read Dec. 2, 1880), says, in reference to the distribution of species: —

"Before leaving the subject of the distribution of Japanese Conifers, a word may be said as to the occurrence of certain trees (often of peculiar organization), in the immediate vicinity of the temples in Japan, China, Thibet, etc. In some of these cases, the trees are not known in a wild state, the aboriginal stocks being either extinct or lurking in some of the all but unknown districts of the Chinese Empire, Thibet, or Central Asia. Among such may be mentioned, as worthy the attention of students of Buddhist lore: *Cupressus funebris* (China, Sikkim), *Abies Fortunei* (China), *Abies Kœmpferi* (China), *Cryptomeria Japonica*, *Sciadopitys verticillata*, *Gingko biloba*, and certain species of *Pinus*."

The regions thus far considered, are the ones, and the only ones from which we may add extensively to our collections. Among the regions, where a few additional species may be found—in some cases very valuable ones—is the Rocky Mountain region of Colorado. Here many species of the Pacific flora flourish in company with eastern species, and hence, this region may be considered as the common meeting ground of the Atlantic and Pacific floras.

From this region have come two of our most desirable ornamental trees. These are the Blue Rocky Mountain Spruce and the

Douglas Fir. The Blue Spruce has been fairly tested here and proves perfectly hardy. There are several specimens in the vicinity of Boston which have reached the height of fifteen feet, retaining a beautifully compact form. Individual specimens vary much in color, from a dark green to the striking glaucous blue, so much admired in many specimens. This tree is known most frequently by the incorrect name of *Abies Menziesii*, hastily given it by Colorado botanists. It should be known as *Picea pungens*. The Douglas Fir is scarcely less beautiful, and is quite as hardy, having been tested here equally long. From an economic point of view — a side of the question which should not be lost sight of even in cultivating trees for ornament, — the Douglas Fir is one of the most valuable trees now existing in North America, and may in the future occupy the place likely soon to be vacated by our native pines and spruces; when, if forest culture is systematically conducted in Massachusetts, it will be a source of much profit to our people. From this Colorado region also, have been introduced, with success, a Hawthorn, a Poplar, the White Fir (*Abies concolor*), *Pinus flexilis*, *Pinus ponderosa*, and *Picea Engelmannii*, the latter resembling, but distinct from, the Blue Spruce (*Picea pungens*), and not unlike our northern White Spruce. There are, also, not often cultivated here, a Pine, a Larch, and a Spruce. The Pine (*Pinus contorta* var. *Murrayana*) has withstood the winters of late at the Arnold Arboretum, in good condition.

The plants introduced from this region possess a remarkable interest, and establish beyond a doubt the value of experimental stations where scientific tests may be applied to tree culture. As has been suggested in a previous essay, the plants raised from the seeds of certain Colorado trees prove perfectly hardy here in New England, while those raised from the seeds of the same species of tree collected in the milder, moister climate of the Pacific slope have failed to endure our climate, but flourish perfectly in England, where most of the trees from the Pacific slope find themselves at home, thus proving by actual experiment the analogy between the climate of the northwestern United States and that of western Europe.

Again, turning to the eastern hemisphere, among the regions from which we may hope to add plants for cultivation here, is a portion of Toorkistan, from whence, already, an Ash has been obtained. From Thibet, the *Pinus Gerardiana* promises to prove

hardy, and similar results may be expected from some trees in portions of the Himalaya mountains. From the region of the Caucasus, we have still more species—a Maple, the *Zelkowa crenata*, the *Pterocarya fraxinifolia*, a fine specimen of which stands in the Botanic Garden at Cambridge; the *Carpinus Duanensis*, long cultivated here, though not extensively; and among the conifers, *Abies Cilicica*, *Abies Nordmanniana*, and *Picea orientalis*. Of the last two species, specimens may be seen on some estates near Boston, fifteen feet high, and of fine appearance. From the Balkan mountains of Roumelia, which is now considered its original home, though it was introduced here by way of Europe, we have the Horse Chestnut. This tree in proper situations, possesses a stateliness unequalled by any other, and its magnificent show of blossoms in the month of May, never fails to attract attention.

As it is said that "the exceptions prove the rule," we resort to the exceptional species from regions, whence it is generally useless to attempt to introduce trees with the prospect of satisfactory results. There are certain species of trees whose geographical range is of such wide extent that they seem to have acquired a special power to adapt themselves to different climates. Among such are the White Willow and the European Elm. Both of these trees are familiar objects to us, having been brought here by the early colonists as reminders of their old homes. The European elm proves, for city streets, superior to the American species, which has unfortunately been selected as the one American tree for constant service. The American elm, although of surpassing beauty in a moist alluvial soil and with abundant space, is usually planted in dry soil, where it does not flourish, and its drooping branches make it generally unsuitable for narrow streets, where it is frequently seen. The English elm, however, is more erect in habit, retains its foliage longer in the autumn, and withstands the smoky and dusty atmosphere of our cities far better than the American species. The European should, wherever possible, replace the American elm in our city streets. The European Larch is another tree of this class. Growing naturally in a dryer soil, it is much more suitable for our gravelly hills than the meagre foliaged American tree, which finds its home in low, wet grounds. The Norway Maple, too, in situations near the ocean, may, perhaps, be considered the most desirable among the foreign maples for general cultivation, and the conspicuous yellow blossoms, coming before the leaves appear, give an additional value to the tree.

The Turkey Oak, *Fraxinus ornus*, *Tilia argentea*, and *Acer campestre*, may be added, as desirable, and also *Carpinus Betulus* and *Salix laurifolia*, and, perhaps, also *Tilia dasystylis* and *Quercus Pannonica*, but the last two are not fairly tested. Among the Conifers which may receive mention here, is *Thuja Wareana*, usually called Siberian Arbor Vitæ, and considered a native of Europe. It is, in reality, a seedling variety of our own New England *Thuja occidentalis*. From its preference for drier soils, it is much better adapted for cultivation than the typical form, which flourishes only in wet or low grounds, and is of little service in ordinary plantations. From the Pacific slope, we have as exceptions, the *Rhamnus Purshiana*, well known in medicine; the Vine maple; and, possibly as serviceable in favorable situations, a Hawthorn, a Crab apple, a Poplar, *Abies amabilis*, *Abies nobilis*, and *Picea Sitchensis*, but these need a more extended test.

But here we should stop, where it is most usual to begin, with the ordinary European trees. To those unfamiliar with the history of American arboriculture, it can but seem strange that, with the largest supply of the most beautiful forest trees directly under our hands, most of our older estates are filled with European trees, many of which are totally unfit for cultivation in our climate, and are in every way unworthy to be placed beside their American congeners. Among the European trees most common in cultivation, is the Sycamore Maple, specimens of which, at fifty years of age, are worthless. The other European maple, the Norway, is, however, suitable for certain situations, as already stated. Neither of them are so beautiful as our Sugar Maple, and even the White and the Red Maples hold their own against them in favorable soils. The European Mountain Ash, more frequently seen in cultivation than either of the American species, seldom matures, except in a miserable condition, and the European Linden possesses but one advantage over our own, that of having more fragrant blossoms, while the American tree is otherwise its superior. The European Ash cannot claim to even equal the American White Ash, either as an ornamental or as a useful tree, and neither the European Beech nor the Birch compares, in cultivation here, with the corresponding American species. Our Chestnut is superior to its Old World relative, and the Black Walnut, or even the Butternut, is far better for us than the Walnut of Europe. The English Oak fails here in less than fifty years, when it should be hale and hearty at

a thousand. Probably no European tree has been more extensively introduced into cultivation than the Norway Spruce, for ornament as specimen trees, for wind-breaks, and for hedges, and yet New England possesses, in the White Spruce of the northern forests, a tree every way its superior; or, were it possible to replace the Norway by the Blue Rocky Mountain Spruce, which is suited for all purposes, the improvement would be great indeed. The same comparisons may be made in favor of the American Pines. The White Pine far surpasses either the Austrian or the Scotch Pine as an ornamental and useful tree. The Red Pine, which is even now found growing naturally in Massachusetts, while it resembles the Austrian Pine somewhat in appearance in the young state, is just beginning its maturer life when the Austrian Pine is failing, as it almost always does in the course of thirty years. The common Pitch Pine, often overlooked, is for us a much more valuable tree for planting in a sandy soil, than either of the European species. Why is it, then, that we have been as it were, loaded down with a mass of unsuitable material, often rendering the labors of earnest arboriculturists of the last generation a waste? Why is it that, with a vast storehouse of trees, in every way adapted to our wants, and directly at hand, we have persistently planted valueless species to the exclusion of the nearer and better ones? It is partly our misfortune and partly our fault. We have been too easily satisfied to follow foreign taste, use foreign trees, and study foreign books. Scientific arboriculture here has received little or no attention. These are our faults. Our misfortune is that we have not had in New England an Andrew J. Downing to influence the taste for arboriculture, and to guide it in its proper channels. Had we been so fortunate, his influence could not have failed to produce a marked effect here, as Downing's has done in the region where he lived and wrote. Our nurserymen should realize the great importance of the position that they hold in the community, and the vast influence, if used in the right direction, they have upon the future taste for trees and the results of tree planting. In selecting ornamental trees the purchaser is entirely dependent upon the nurseryman, for a knowledge of the proper species. It is, therefore, very important that those who deal in trees should possess a fair knowledge of scientific arboriculture, in order to form a correct judgment in recommending trees for various situations, and to be of real service to the purchaser, who, in most cases,

knows nothing whatever of the subject. Good courses of reading and lectures upon structural and physiological botany cannot be too strongly recommended for those who intend making the raising or dealing in trees their business; a careful study of the applicable portions of such works as Marsh's "Man and Nature" and Gray's "Structural Botany," will be a valuable addition to the practical knowledge gained in the field.

It is a common error to suppose that by what is popularly known as acclimation, almost any plant may be made to flourish in a climate where it does not naturally grow, if it only can be inured gradually enough to the change. This theory has been proved false by actual experiments. It is not, therefore, by habituating to our climate plants from regions differing totally in climate from our own, that we should expect to add to our collections; but by carefully studying the climatic conditions of all countries, and selecting, from such regions as seem to possess a climate resembling ours, plants which we can cultivate here with the prospect of success. Until recently there has been no authoritative source of correct information to guide in the selection of trees for our ornamental collections. Horticulturists during the past hundred years, or even more, have experimented almost at random with a large number of species, and for what is now known of the subject we are indebted to the enthusiasm of the pioneers of horticulture in this part of the country. But something more is needed in a country like ours, where large estates seldom remain intact for more than one or two generations, and where the demands for business purposes require us to surrender today the land which, but a few years ago, was considered quite beyond their reach. It is therefore necessary that experiments, sufficiently continued to give them the highest value, should be carried on by institutions permanently established, where the work inaugurated by one generation shall be steadily forwarded by the next; for in the study of arboriculture, where definite results may not be reached for a century, patient labor and carefully recorded observations must always be the work of the student. We cannot, therefore, too highly estimate the value of the work contemplated by Harvard College in establishing the Arnold Arboretum. In 1874, a tract of land on the Bussey estate in West Roxbury, near Boston, was set apart by the college for the purposes of an arboretum. A collection of living plants was at once commenced, both of native species and

of those from other portions of the temperate zone. By a system of exchanges with institutions of similar character in other parts of the world the collection was rapidly augmented, so that at the present time it contains a larger number of species and varieties of hardy trees and shrubs than any other collection in this country. Experiments have been tried and are still continued with plants and seeds from regions where the climate is at all similar to our own, and even where in some cases local conditions of climate suggest the possibility of obtaining for cultivation here (as in the case of the Douglas Fir) individuals of a species which generally inhabits a very different climate, and one from which we should not expect to introduce plants with success. Although much has already been accomplished, a work so great as that contemplated must be considered as largely in the future, and as even a commencement of the final arrangements has been delayed on account of certain plans now under consideration by the College and the city of Boston, the collection of living plants is still in the form of a nursery, and no scientific arrangement has as yet been begun. It is intended as soon as practicable to plant along the roadways the species of trees and shrubs, both native and foreign, in the order of their botanical sequence, and to have them so grouped that the plants of one family will be together and readily studied. All the varieties, too, of a species will find their appropriate places in the systematic order, that the visitor may acquaint himself with their position, and readily compare them with the species from which they are supposed to have been derived. By this arrangement it will at once be seen what species and varieties are most worthy of cultivation, and in what countries or portions of countries the plants best adapted to our wants are found. Those which prove failures will also be pointed out, that we may know what to avoid in making our selections. In other portions of the grounds it is intended to illustrate the methods of making artificial forests, and the different ways of planting trees for economic and ornamental purposes. A museum and herbarium for the benefit of those who are studying ligneous plants scientifically, or who may desire to name specimens or to select plants for horticultural purposes, has been commenced. This collection has already become quite extensive, and besides a very good herbarium of the woody plants of the temperate zone, includes specimens of the wood of nearly all the North American forest

trees, together with a large number of foreign species. It is intended to include in the collection everything relating to trees and forests that will illustrate the subject botanically or horticulturally. With these objects constantly in view, the Arboretum, with its collections now existing, and those which will inevitably follow, offers to all who desire to study the trees, whether scientifically or in their horticultural or economic aspects, such an opportunity as until now never has been given our people. The Arboretum is so situated, that the experiments conducted there will not only be of great value to this portion of New England, but will apply to a large part of the whole country as well.

Arboriculture is indebted to horticulture for the production of many valuable garden varieties of trees. The magnificent variety of Rhododendrons and Azaleas, and the hybrid Magnolias and other plants, attest the zeal and success of enlightened horticulturists, and by the preservation of such natural sports as the Purple Beech and some of the cut-leaved Birches and Maples, as well as the finer sorts of weeping trees, horticulturists have contributed many valuable additions to our ornamental collections. But there is a tendency to overdo this as well as other branches of gardening, and we find the absurd practice too much in vogue, of saving and perpetuating many monstrosities which should never receive a place in any collection. There are long lists of golden-leaved, cut-leaved, and blotched-leaved varieties, which are but diseased and short lived abnormal conditions and arrested growths of healthier plants, and are wholly unworthy of preservation. Nor can much more that is favorable be said of the many so-called "inverted" varieties of hardy trees. This fashion is as unhealthy as the plants themselves, and should be as short lived.

If one-tenth the energy which is devoted to the propagation of such plants were given to the study of climate, and the introduction of new species, our gardens and plantations would better illustrate the advances that modern science has made in botanical geography and the knowledge of plant life. Nor is it enough to select and secure proper trees for our plantations; it is as necessary to properly care for them as to plant them. Too little attention is paid to the proper thinning and pruning of our trees. It is a subject little understood or practised here, although in Europe its importance has long been recognized, and pruning forms an important part of the arboriculturist's duty. The want of proper

pruning and care is especially noticeable in our city and roadside trees. They are too often left to themselves, or else mutilated in rude attempts at unscientific pruning. To supply information on this important subject, the Massachusetts Society for Promoting Agriculture has recently caused to be translated from the French, a treatise from the pen of the Count des Cars; a work which has passed through many editions in France, and which is of great practical value. It should be in the hands of every one who has charge of trees, or is interested to see them properly managed. Could Mons. des Cars's directions be followed, the trees on Boston Common, and in the parks and streets of our cities, would present a very different appearance, and their chances for long life and greater beauty would be immensely increased.

The science of arboriculture is in its infancy here, but under the influence that might be exercised by such institutions as the Arnold Arboretum and this Society, it should not long remain so. The subject is one of vast importance, and, whether considered scientifically, horticulturally, or from its economic aspects, should receive earnest consideration; and there is, perhaps, no better way of calling the attention of the community to it than by first making trees attractive in ornamental plantations. One of the most experienced and scientific horticulturists, whose name is known wherever the study of plants is pursued, has said: "It is the duty of our enlightened community to plant trees, and to so care for them that posterity shall not suffer; a duty, unfortunately, too little regarded in our day."

Appendix.

List of Trees which may be used for Ornamental Plantations in the Northern United States, arranged under the regions indicated above.

Such as have not been thoroughly tested, but which may be expected to succeed, are marked by an asterisk.

I. Appalachian, or Atlantic American.

Magnolia acuminata (Cucumber tree).
" cordata.
" Fraseri.
" glauca (Sweet Bay).
" macrophylla.
" Umbrella (Umbrella tree).

Liriodendron Tulipifera (Tulip tree).
Tilia Americana (Basswood, Linden).
* " heterophylla (Southern Linden).
Æsculus flava (Sweet Buckeye).
" glabra (Ohio Buckeye).
" Pavia.
Acer dasycarpum (White or Silver Maple).
" Pennsylvanicum (Striped Maple).
" rubrum (Red or Swamp Maple).
" saccharinum (Sugar Maple).
" " *var.* nigrum (Black Maple).
" spicatum (Mountain Maple).
Negundo aceroides (Box Elder).
Rhus typhina (Stag-horn Sumach).
" glabra.
* " cotinoides.
" copallina.
Robinia Pseudacacia (Locust).
" viscosa (Clammy Locust).
Cladrastis tinctoria (Yellow-wood).
Gymnocladus Canadensis (Kentucky Coffee tree).
Cercis Canadensis (Red-bud).
Gleditschia triacanthos (Honey Locust, Three-thorned Acacia).
Prunus Americana (Canada Plum).
" Pennsylvanica (Bird Cherry).
" serotina (Black Cherry).
Pirus Americana (American Mountain Ash).
" sambucifolia.
" coronaria (American Crab Apple).
" angustifolia.
Cratægus cordata (Washington Thorn).
" Crus-galli (Cockspur Thorn).
" coccinea (Scarlet-fruited Thorn).
" sub-villosa (from the Valley of the Mississippi).
" tomentosa (Black Thorn).
Amelanchier Canadensis (June-berry).
Cornus florida (Flowering Dogwood).
Nyssa multiflora (Tupelo).
Viburnum Lentago (Sheep-berry).

Viburnum prunifolium (Black Haw).
" alternifolium.
Oxydendrum arboreum (Sorrel tree).
Kalmia latifolia (Laurel).
Rhododendron maximum (Great Laurel).
Diospyros Virginiana (Persimmon).
Halesia tetraptera (Silver-bell tree).
Fraxinus Americana (White Ash).
" pubescens (Red Ash).
" quadrangulata (from Michigan, etc.).
" sambucifolia (Black Ash).
" viridis.
Chionanthus Virginica (Fringe tree).
Catalpa bignonioides.
" speciosa (Western Catalpa).
Sassafras officinale.
*Ulmus alata (Winged Elm).
" Americana (White Elm).
" fulva (Slippery Elm).
" racemosa (Rock Elm, from the Western States).
Celtis occidentalis (Nettle tree).
Morus rubra (Red Mulberry).
Maclura aurantiaca (Osage orange).
Platanus occidentalis (Buttonwood).
Juglans cinerea (Butter-nut).
" nigra (Black Walnut).
Carya alba (Shag-bark Hickory).
" sulcata (Western Hickory).
" amara (Bitter-nut Hickory).
" porcina (Pig-nut Hickory).
" tomentosa (White-heart Hickory).
Quercus alba (White Oak).
" bicolor (Swamp White Oak).
" coccinea (Scarlet Oak).
* " heterophylla (from New Jersey, Delaware, etc.).
" imbricaria (Shingle Oak).
" macrocarpa (Over-cup Oak, Burr Oak).
" Muhlenbergii (Chestnut Oak).
" palustris (Pin Oak).
" Phellos (Willow Oak).

Quercus Prinus (Rock Chestnut Oak).
" rubra (Red Oak).
" stellata (Post Oak).
" tinctoria (Yellow-barked Oak).
Castanea vulgaris, *var.* Americana (Chestnut).
" pumila (Chinquapin).
Fagus ferruginea (Beech).
Ostrya Virginica (Hop Hornbeam).
Carpinus Caroliniana (Blue Beech, Iron Wood).
Betula alba, *var.* populifolia (White or Gray Birch).
" lenta (Black or Sweet Birch).
" lutea (Yellow Birch).
" nigra (Red or River Birch).
" papyracea (Paper or Canoe Birch).
Alnus incana (Speckled Alder).
" serrulata (Blunt leaved Alder).
Salix nigra (Black Willow).
" cordata (Heart-leaved Willow).
" lucida (Shining Willow).
Populus balsamifera.
" " *var.* candicans (Balm of Gilead).
" grandidentata (Large-toothed Aspen).
" tremuloides (American Aspen).
" monilifera (Necklace Poplar).
Juniperus Virginiana (Red Cedar).
Chamæcyparis sphæroidea (White Cedar).
Thuja occidentalis (Arbor Vitæ).
Taxodium distichum (Bald Cypress).
Abies balsamea (Balsam Fir).
Tsuga Canadensis (Hemlock).
* " Caroliniana (from North Carolina, etc.).
Picea alba (White Spruce).
" nigra (Black Spruce).
Larix Americana (American Larch).
Pinus Banksiana (Gray Pine).
" resinosa (Red Pine).
" pungens (Table Mountain Pine).
" rigida (Pitch Pine).
" Strobus (White Pine).
" inops (Jersey Scrub Pine).

II. Northeastern Asia.

A. China and Manchooria.

Magnolia conspicua (Yulan).
" stellata.
" (garden hybrids and varieties).
Liriodendron (species from Northern China).
Phellodendron Amurense.
Tamarix Chinensis (Chinese Tamarisk).
*Tilia Mandshurica (Manchoorian Linden).
*Æsculus Chinensis (Chinese Horse Chestnut).
*Acer Mono.
" Tartaricum.
" " *var.* Ginnala (Fragrant Maple).
Cladrastis Amurensis.
Gleditschia ferox (Thorny Honey Locust).
*Gynmocladus Chinensis (Chinese Coffee tree).
Cratægus orientalis.
Prunus Maacii.
* " Mume.
Cedrela Chinensis.
*Fraxinus Mandshurica (Manchoorian Ash).
*Pterocarya stenoptera.
*Quercus Mongolica.
*Betula Ermani.
* " ulmifolia (Elm-leaved Birch).
Juglans Mandshurica (Manchoorian Walnut).
Taxodium heterophyllum (Glyptostrobus).
Pinus Bungeana (White-barked Pine).
" Mandshurica.
Juniperus Chinensis.
Pseudolarix Kæmpferi.

B. Japan.

Tilia cordata.
*Acer cratægifolium (Hawthorn-leaved Maple).
* " micranthum.
" polymorphum (including some varieties).
" rufinerve.
" Japonicum.

*Acer Sieboldianum.
" pictum.
* " truncatum.
* " trifidum.
* " diabolicum.
* " circumlobatum.
* " Buergerianum.
" palmatum.
" capillipes.
" carpinifolium.
* " distylum.
* " argutum.
* " pycnanthum.
* " sessilifolium.
* " Nikoense.
Negundo cissifolium.
Rhus semi-alata. (R. Osbeckii of authors).
*Phellodendron Japonicum.
Gleditschia Japonica.
Cercis Chinensis (C. Japonica of gardens).
Sophora Japonica.
Pirus Toringo.
* " tomentosa.
* " præcox.
" spectabilis.
Kœlreuteria Japonica.
*Zelkowa Keaki.
" stipulacea.
Idesia polycarpa.
Rhododendron (species and garden varieties).
*Fraxinus longicuspis.
* " obovata.
* " pubinervis.
*Platycarpa strobilacea.
Ulmus parvifolia.
Morus alba.
*Pterocarya rhoifolia.
Juglans Sieboldii (Japanese Walnut).
* " cordiformis.

*Quercus glabra.
* " dentata.
* " serrata.
* " cuspidata.
*Fagus Sieboldii.
Castanea Japonica.
*Betula Bhojpattra.
* " coryifolia.
* " Maximowicziana.
*Carpinus Japonica.
* " laxiflora.
* " erosa.
* " cordata.
Alnus Japonica.
*Thuja dolabrata.
* " Japonica.
* " orientalis.
" " *var.* pendula.
Chamæcyparis (Retinospora) pisifera.
" " " *var.* squarrosa.
" " " " leptoclada.
" " " " plumosa.
" " " " filifera.
" " obtusa.
" " " " lycopodioides.
" " " " pygmæa.
" " " " nana.
" " " " Keteleerii.
" " " " breviramea.
" " " " pendula.
" " " " filicoides.
Juniperus rigida.
* " Nipponica.
* " littoralis.
* " Davurica.
Cephalotaxus drupacea.
Taxus cuspidata.
Sciadopitys verticillata (Umbrella Pine).
Pinus densiflora (often cultivated as P. Massoniana).
* " Thunbergii.

Pinus parviflora.
" Koraiensis.
Tsuga Japonica (Japanese Hemlock).
Gingko biloba (Gingko tree, Salisburia).
Larix læptolepis.

III. Special Regions.

A. Rocky Mountain region of Colorado.

Acer glabrum.
*Robinia Neo-Mexicana.
*Cratægus rivularis.
Betula occidentalis.
*Populus angustifolia (Narrow-leaved Poplar).
Abies concolor (White Fir).
* " subalpina.
Pseudotsuga Douglasii (Douglas Fir).
Picea Engelmannii.
" pungens (Blue Spruce).
Pinus ponderosa, *var.* scopulorum.

B. Siberia.

Caragana arborescens.
Halimodendron argenteum.
Ulmus pumila.
Picea obovata.

C. Toorkistan.

Fraxinus potimophila.

D. Thibet.

*Pinus Gerardiana.

E. Caucasus.

Acer lætum.
Zelkowa crenata.
Pterocarya fraxinifolia.
Carpinus Duanensis.
Picea orientalis.
Abies Nordmanniana.
" Cilicica.

IV. Exceptional Species.

A. Pacific Slope.

Species of the Pacific forest of more or less wide geographical range, which should be tested in New England, from their more northern limits in the Rocky Mountains and Coast Ranges.

Rhamnus Purshiana.
Acer circinnatum.
* " macrophyllum.
*Cratægus Douglasii.
*Pirus rivularis.
Fraxinus Oregana.
*Quercus Garryana.
*Populus tricocarpa.
*Alnus rubra.
* " rhombifolia.
*Salix lasiandra.
*Torreya taxifolia.
*Chamæcyparis Nutkaensis.
*Thuiopsis borealis (of gardens. Hardy in New York).
*Thuja gigantea.
*Abies nobilis.
* " grandis.
* " amabilis.
*Tsuga Mertensiana.
* " Pattoniana.
*Picea Sitchensis.
*Larix Lyallii.
* " occidentalis.
*Pinus albicaulis.
* " contorta, *var.* Murrayana (Twisted Pine).
" flexilis.
* " Lambertiana.
* " monticola.

B. European.

Æsculus Hippocastanum (Horse Chestnut).
Acer campestre.
" platanoides (near the ocean).

Tilia argentea (Silver-leaved Linden).
" dasystylis.
Fraxinus ornus.
Ulmus montana.
" campestris.
Quercus cerris (Turkey Oak).
* " Pannonica.
Carpinus Betulus.
Salix alba (White Willow).
" laurifolia.
Populus alba (White Poplar).
*Picea Omorika.
Larix Europæa (European Larch).

Discussion.

Charles M. Hovey, who had been appointed to lead the discussion, expressed regret that the reading of so valuable a paper should have been fixed for this holiday season, when there were comparatively few to listen to it. The subject covers a great deal of ground. Mr. Hovey spoke of the growth of certain trees in certain climates, such as the *Abies Douglasii*, which is found from the Columbia river to the Colorado. Forty years ago, he imported two or three dozen trees from England, but they all perished in a few years. He thought there was something in taking seed from trees growing in northern regions. He had never seen a tree of *Abies Douglasii* ten feet high in this country, except at Mr. Hunnewell's.

Professor Robinson said he knew of trees of the Douglas Fir raised from Colorado seed, twelve feet high, and that this species forms an admirable illustration of the rule that trees raised from seed collected on the Pacific slope, are tender, while those of the same species from Colorado seed are hardy here. All the California trees raised in England forty years ago were from seed collected on the Pacific slope.

Mr. Hovey said that Mr. Hunnewell imported trees of *Cedrus Deodara*, which, though they proved tender, grew large enough to produce seed, and the trees raised from this seed proved hardy. It is not enough that trees should stand our ordinary winters; the true test is a winter of unusual severity, and we have had no

very severe winter here since 1861. From 1846 to 1857 we had moderate winters, and Sequoias and Cedars of Lebanon in the grounds of the speaker, grew up to the height of six feet, but in 1857 they all went down, and many others were injured in 1861. Trees cannot be recommended as hardy from a trial of three or four years under the most favorable circumstances. He knew no living Cedar of Lebanon or Deodar Cedar of any size here. A few years ago he left four camellias out-doors in the winter, with a thick covering of leaves and evergreen boughs among the branches, to test their hardiness. They remained green and healthy with the temperature as low as eight degrees; after that it fell to zero with snow, but when spring came they were all killed down to the ground. The average winter temperature of the shores of Buzzard's Bay is twenty-eight degrees, which is two degrees higher than that of Boston. The *Prinos glabra*, which is there a beautiful evergreen shrub, is here so much injured as to destroy the glossiness of its leaves. The American Holly, which grows around the shores of Buzzard's Bay, finds its northern limit in the vicinity of Bridgewater.

Mr. Hovey said that he admired the English Elm, but objected to it as a street tree. The limbs grow out horizontally, and those on the Beacon street mall stretch almost across the street. He had read of elm trees in England which were dangerous, from this cause. The American Elm, on the contrary, grows more erect, does not give too much shade, and the limbs will not interfere with travel. The English elm holds its leaves longer than the American, which is an advantage. The Sugar Maple is a fine tree, of slow growth; it takes about thirty years to get it thirty feet high, and our people are unwilling to wait for it. The same may be said of the Scarlet Maple. The White, or Silver Maple, is of more rapid growth, and a very fine tree. Its greatest fault is that the branches are liable to be broken by gales, but the broken limbs may be cut off without material injury. The Oriental Spruce and Nordmann's Spruce, are two of the finest. He had raised seedlings of the *Salisburia*, or Gingko tree, which averaged a foot of growth in a year. He thought the Gingko tree on Boston Common was older than stated by Professor Robinson—probably, eighty or ninety years old. The Liquidamber, whose foliage is so beautiful in autumn, is tender here; the speaker has trees fifteen or sixteen feet high, but one half the growth gets killed back every year, and it is very slow work getting them up.

When Mr. Hovey began cultivating trees, American trees were not to be had in the nurseries here or in Europe, and he employed a man to collect young trees of the Canoe Birch, Hop Hornbeam, and others, in New Hampshire; there was, however, but little demand for them, and some of them are now standing on his ground, fine specimens, forty years old. Nurserymen cannot be expected to raise trees for which there is no demand, and the Arnold Arboretum is just what is wanted to make the public acquainted with these as well as the new introductions. He was pleased to hear Professor Robinson's views in regard to introducing trees from corresponding climates. It is useless to attempt acclimating trees. This is shown by the rhododendron. Three years ago, he visited Kew Gardens, after a hard winter, when nearly all the rhododendrons were perfectly brown, but noticed among a large plantation one which was green and uninjured. He gathered seeds from it and brought them home and planted them, and the seedlings looked promising until the severe frosts, early last October, when the whole of the last season's growth, which was not quite completed, was killed. Seedlings from *Rhododendron Catawbiense*, were uninjured. We may succeed, by hybridizing with the perfectly hardy species, in raising improved hardy varieties; but the process must be very slow. It is, however, the only way to secure the finer colors; but, in getting these we are liable to lose their perfect hardiness.

Mr. Hovey said that in 1844, he received the plates of a folio work by Mr. Loudon, on laying out arboretums, and when he went to England he visited the Derby Arboretum which was laid out by Mr. Loudon; but he was rather disappointed in it. An arboretum should be a collection of all hardy trees, planted in groups according to the natural system. The Arnold Arboretum is yet in its infancy. We should be highly pleased to see the new trees from Toorkistan, and other newly explored regions, but we must not be too sanguine of their adaptation for general planting here, or too quick in deciding on it. By visiting the arboretum, we shall learn what trees are most desirable.

William C. Strong, said that he felt greatly indebted to Professor Robinson for the valuable suggestions in his paper. He asked, in reference to the greater hardiness of trees of *Picea pungens*, and other species when grown from Colorado seed, as compared with those raised from seed from the Pacific slope, whether it was not

the process of acclimation continued over a long period which made the difference. He agreed with Mr. Hovey, that nurserymen could not be expected to raise trees for which there is no demand, but they can do a great deal to educate the public taste. He had had a large quantity of the *Sophora Japonica*, which he endeavored in vain to induce the public to purchase, and they finally went on the brush heap; but, if there were fine specimens of this tree (both the upright and weeping forms) at the Arnold Arboretum, and of other beautiful but little known trees, a better day would come.

Hon. Marshall P. Wilder felt obliged to Professor Robinson for his interesting and appropriate paper, which would tend to bring up the public taste at the right time, just as we have organized a system of public parks, taking in the Arnold Arboretum. The City of Boston stands higher today in education for its action in regard to the Arnold Arboretum. There we shall get the knowledge of trees which former ages could not get. The speaker thought Messrs. Hovey and Strong's apologies for the nurserymen, were quite sufficient. He was pleased with Professor Robinson's distinction between healthy and diseased leaved trees. Though there may be exceptions, the taste for such trees is unnatural, and the speaker did not believe it would continue long. He could not agree with Mr. Strong in regard to acclimation, but thought it in a general sense, a fallacy. Soil and situation have a great deal to do with hardiness. He has a Cedar of Lebanon on a ledge where there is but six inches of soil, and neither too much nor too little water, which has survived when every other one in New England (so far as he knew) has been destroyed. He wished to give all honor to such men as Messrs. Hunnewell, Hayes, and Sargent, who are bringing all the new trees and shrubs from Japan and elsewhere, and testing them.

Professor Robinson said that we must draw the line between what can be accomplished by man in a single generation, and what can be done by nature in the course of ages. The changes effected by nature are gradual and imperceptible. The introduction of hardy and tender forms of the same tree from Colorado and California, is very different from acclimation. Both forms were probably disseminated from one stock at the close of the last geological epoch, when they were forced north, some to Colorado and some to California, — perhaps a million of years ago, — and during that time,

which cannot be computed, have gradually acquired the differences which now mark them.

Mr. Hovey referred to a list published in the "Gardener's Monthly," for 1876 (page 194), of one hundred and seventy-five varieties of deciduous ornamental trees, growing in his grounds at Cambridge, including ten varieties of Magnolias, seven Limes, sixteen Maples, eleven Horse Chestnuts, eleven Hawthorns, sixteen Elms, fourteen Oaks, three Larches, *Kœlreuteria paniculata*, *Cladrastis tinctoria* (Yellow-wood), *Caragana arborescens*, *Nyssa biflora*, *Taxodium distichum*, *Gymnocladus Canadensis*, etc.

It was voted that the discussion be continued on the next Saturday.

BUSINESS MEETING.

SATURDAY, December 31, 1881.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Hon. Francis B. Hayes, in the chair.

No business being brought before the meeting it was dissolved.

MEETING FOR DISCUSSION.

The subject was a continuation of that of last week, viz.:

ORNAMENTAL ARBORICULTURE.

J. W. Manning was first called on, and said that our native trees have been greatly overlooked in planting for ornament. The White Pine is one of the best evergreens; it is easily transplanted, and makes a good wind-break, and is valuable both for timber and fuel. The Hemlock is in increasing demand; it makes a good hedge or a fine specimen on the lawn. Though it sometimes suffers from severely cold winds it is found growing naturally in very exposed places. The Tupelo is inclined to root deeply, and is difficult to transplant except when it has been frequently transplanted in the nursery, but a fully developed specimen is very beautiful. The autumn foliage is very richly colored. In swampy land it sometimes grows to two or three feet in diameter. There is a very fine specimen, with an umbrella-shaped head, in Everett, near Bell Rock Station, on the Saugus Branch Railroad.

President Hayes mentioned two very fine specimens, a hundred feet high, in the grounds of Robert B. Parsons, at Flushing, N. Y.

Mr. Manning said there is a very fine one, about eighty feet high, on the farm of Langdon Ordway, in Bow, N. H. Concord, N. H., is distinguished for beautiful elm trees. He thought the American Elm the handsomest of all the large shade trees.

President Hayes mentioned a remarkably beautiful elm near the old North Church in Concord, N. H. When his namesake, the President of the United States, was at Concord, he visited this tree, and took off his hat to it. He was so impressed with its beauty that he asked to revisit it, which he did, and suggested that the land on which it stands should be purchased and a fence placed around it, and presented to the city, to insure its preservation.

Mr. Manning said there are several fine elms at Newburyport. One near Byfield Station measures, at two feet from the ground and following the ridges of the trunk, forty-two feet in circumference, and at five or six feet from the ground eighteen feet in circumference.

John B. Moore wished to speak in favor of the elm, as the finest street tree in New England. It has been said that it will not grow except in moist soils, but this is not so. Its withy limbs withstand gales better than those of any other tree. It is a rapid grower; one which he helped to plant about fifty years ago, now measures, at eighteen inches from the ground, eleven feet in circumference. There are many trees in Concord which he planted, now from three to eight feet round. Mr. Moore spoke of a Three-thorned Acacia, six feet in circumference; this tree is valuable for its timber, and is not troubled by the borer, like the common locust. There have frequently been great mistakes made when planting elm trees by roadsides, in placing them too close. One handsome, fully developed tree is worth many small ones. There are many varieties of the American elm; one has the limbs feathered with small branches nearly to the ground, and it is one of the most beautiful, if you can keep the ignorant persons employed to prune street trees from cutting them off.

Hon. Marshall P. Wilder asked Mr. Moore if the elm will grow in a soil of all sand.

Mr. Moore replied that it has a faculty of going through three or four rods of gravel to get at a good soil. This was done by two which he set out twenty-five or thirty years ago, and the suc-

cess of which, though he gave each a cartload of soil, seemed for a time rather doubtful.

President Hayes related an anecdote of Judge Chadbourne in his native town in the State of Maine, on the border of the State of New Hampshire, who, soon after potatoes were introduced, raised a barrel of them, which gave him such celebrity that he was made a judge. The judge planted several fine elm trees near his residence, which were much admired, and Governor Hancock, of Massachusetts, hearing them praised, asked the judge to supply him with some like them to plant in Boston. Judge Chadbourne sent his negro man, Pompey, to select the trees, which were forwarded to Boston and planted there. Soon afterwards the judge missed some trees on his own grounds, which he had carefully reserved to adorn his mansion, and, on inquiry, it proved that Pompey, to make sure of giving the governor the best trees, had sent those which the judge had kept for himself.

Rev. A. B. Muzzey said he felt a special interest in one branch of the subject under discussion. He thought the Horse Chestnut tree one of the most beautiful, both for its foliage and its flowers, the latter developing rapidly at a time when there are but few flowers. The horse chestnut tree, celebrated by Longfellow, was cut down, in spite of the remonstrances of those living in the neighborhood, because it interfered with the prospect from the west windows, of certain other persons. One tree on the same street was spared only because a remonstrance was made by ladies. Such acts are too common, even in New England. A neighbor of the speaker had a fine elm which was cut down in its prime because he wanted a little more ground on which to plant vegetables. Other instances might be mentioned of fine trees being cut down for a mere whim. These acts seem almost felonious, and the speaker thought it important that an influence should go forth from this Society to prevent such offences against good taste.

Mrs. Mary E. Wellington spoke of a very fine English Elm at her home in Reading, one hundred and seventy-five years old, which branches low and spreads so wide, and casts so deep a shade, that the family spend much of their time in summer under it.

William C. Strong referred to the subject of acclimation, and said that, though no one thinks tropical trees can be made hardy in New England, there might be a question as to half-hardy trees. Professor Robinson's explanation of the hardiness of *Picea pun-*

gens, from California seed, did not strike him as plausible. Trees raised from California seed are almost hardy here, and quite hardy in France and England; and it is reasonable to suppose that seeds may have been conveyed from California into greater altitudes and colder regions. Corn taken from here to Canada will ripen earlier, and when brought back becomes a six weeks corn. The case is the same with the tomato. Professor Robinson's instance of the *Magnolia glauca*, which, when grown here is perfectly hardy, while plants of the same species brought from Florida would not survive a single winter, is a parallel case. The speaker thought plants from milder climates might be gradually accustomed to that of New England, and he brought up the subject because he deemed it of practical importance. We are introducing many new trees, and shall we cast away all that do not appear to stand our climate? The speaker thought they might be acclimated as men are. The fact that men may become acclimated, encourages us to hope that trees may. In long extended experiments, we may not succeed with a majority, but with others we may be successful. We ought to have institutions like the Arnold Arboretum where such experiments can be carried on.

Hon. Marshall P. Wilder said that Mr. Strong's views were practical, but he would like to have him mention an instance where a tree had been acclimated.

Mr. Strong replied that *Picea Nordmanniana* is of questionable hardiness when young, but afterwards becomes quite hardy. *Cupressus Lawsoniana* is hopeful; it sometimes produces seed here, and the seedlings may be hardy. He had got the type up to eight feet in height. Many Japan plants are hopeful. With many plants there is no prospect of hardiness, but with others there may be.

Thomas Whitaker said that the question of acclimation was an important one, and understanding it will unlock a door which we have thought closed. Professor Robinson said that a certain tree which would flourish in England would not flourish here, and the speaker thought it might be so. More trees are lost here by summer killing than by winter killing. A tree from Siberia will no doubt stand our winters, but will it stand our summers? People talk about the rigors of our winters as compared with those of England, but he could stand a New England winter better than one in old England. He spoke of a trip from Bingley to Bradford, England, with

the mercury at nineteen degrees above zero, and said that when he got six miles the horses and men were all white with hoar frost. After his return he had to take a second trip, and when he got home at night the water was pouring off his clothes. He had ridden ten miles in this country with the thermometer twenty degrees below zero, and suffered less than during his trip to Bradford. He had seen in England, currant and gooseberry bushes putting out leaves in February, but they do not mature their fruit earlier than they do here. They keep their leaves green until November, making a growing season of eight or nine months. In New England the season of growth is but about three months, and in that time the sap must ascend the trees and deposit the matter to form the growth of the year. In England this process goes on slowly, but here at race-horse speed. It is the same with all vegetables. Can we expect to change the habits of trees? A tree from England has not time to mature its wood in one of our short seasons, and consequently is liable to injury in winter. All plants that can mature their wood take a longer time there. It is important in selecting seed to consider where it comes from, and where it is to be sown. He would prefer to get seed from sandy ground to sow on sandy land, rather than from a mucky soil. The question of adaptation comes up in every case. He thought trees might be brought from England and produce seed here, that might be called native. Plants grown under such different circumstances might be botanically alike, but physiologically there must be a difference, and in order to raise trees, plants, or vegetables to as great perfection in one country as in another, they must not only be botanically alike, but also physiologically the same, and it is to do away with this physiological difference that acclimation becomes of so much importance. There is no doubt we are losing vast sums of money every year by not paying proper attention to this subject of adaptation. In England, in some winters wheat hardly stops growing; it certainly would commence in February. In September, we should find that New England wheat had been in the barn six weeks, but in old England it would not even be reaped. Under these circumstances who would think of bringing seed from there here.

Mr. Manning thought it was not strange that trees raised from Colorado seed should be hardy, for in 1880 the cold at the signal station at Pike's Peak was 69° below zero. At Denver, the "blizzards" brought a cold of 30° or 40° below zero. He saw trees of

the Douglas Spruce at the foot of Engelmann Canyon, which had made two feet of growth on the 28th of June. The next day, on Pike's Peak, at an elevation of about 12,000 feet, spruce and pine trees were just budding out. At this elevation he saw *Pinus aristata* three feet in diameter, and spruce trees of the Engelmann type from one to two feet thick and from forty to sixty feet high, but this was in a sheltered position. On the 10th of July he walked from Georgetown, the terminus of the railroad, at an elevation of 8,000 feet, up the Argentine Pass, a distance of nine miles, passing near the Twin Lakes, to the summit of the Pass, which is 13,006 feet above the level of the sea. On this route the spruces at the highest limit of trees (more than 12,000 feet,) were a foot and a half thick at the base and only six feet high, and while on the windward side the branches were like stag's horns, on the leeward side they were fifteen or twenty feet long and very luxuriant. The same species (probably Engelmann's) at an elevation of more than 10,000 feet, grew two or three feet in diameter, and from thirty to fifty feet in height. The Douglas Spruce is not found at as great an elevation as Engelmann's. The speaker saw trees of the latter from twenty to one hundred feet high, and of all shades, from light green to misty blue. One tree of *Picea pungens*, near the South Platte River, was of a glaucous color, and measured five feet in diameter, and one hundred and ten feet in height, and spread forty-five feet, with vigorous branches to the ground.

The Red Oak transplants easily, and makes a good street tree. The American Basswood or Linden tree makes a good shade. It is adapted to a great variety of soils, from light and dry to moist, and succeeds well down to the verge of tide-water.

President Hayes spoke of a remarkably fine elm opposite his summer residence in Lexington, planted soon after the settlement of the country, on the place where John Hancock, the grandfather of the governor, lived.

Leander Wetherell alluded to the remark which he made last season that the elm is not adapted to sandy, gravelly soils. He had seen it growing indigenously between Rochester and Buffalo, in clayey soils, and the same in Canada. His opinion still is that it is not adapted to gravelly soils. He agreed with Professor Robinson that the Sugar Maple is one of the best shade trees, but it is not adapted to gravelly soils. It is a clean tree. A native of Hardwick, in this State, who had made a fortune in California,

when on a visit to his old home, gave a sum of money for planting sugar maples along the streets of the town. The speaker agreed with Mr. Moore that the American elm is superior to the English; he takes great pleasure in looking at the length and beauty of the limbs, which are peculiarly graceful. It is true that the English elm holds its foliage later than the American, but it does not put out so early. The planting of trees has engaged attention from the earliest ages, for we find in the Old Testament the record of care to preserve trees. We must allow for diversity of tastes in regard to trees, and with the great variety all can be pleased. Mr. Hadwen planted his trees himself, because he could get no one to do it as well. The first thing to be considered is the selection of trees, and the second is care in planting. The speaker had noticed in Somerset street, horse chestnut trees defoliated by caterpillars four or five years in succession, with the effect of changing their time of flowering from spring to August. This may be an advantage, as flowers are scarcer at that time than in spring, — as canker worms have changed the bearing year of Baldwin apple trees from the even to the odd year, to the great advantage of the owner.

Mr. Wilder desired to say to Mr. Strong — go on with your attempts at acclimation — "nothing venture nothing have." But he had tried the *Cedrus Deodara*, the *Cryptomeria Japonica*, the *Cupressus Lawsoniana*, and the *Sequoia gigantea*, and, like Mr. Strong, had succeeded in getting them up to some height, but afterwards they failed. Ellwanger & Barry, of Rochester, New York, procured a large quantity of Sequoia seed soon after the tree was discovered, part of which they sent to Europe, and part of which they planted, and raised fine trees from it, but they have gradually diminished in number, until only a very few are left. We cannot adapt a tree to a climate different from its own by any process of cultivation, but when it is raised from seed another element is introduced.

Notice was given that the discussion of the subject would be continued after the business meeting on the next Saturday.

REPORT

OF THE

COMMITTEE ON PLANTS AND FLOWERS,

FOR THE YEAR 1881.

By WILLIAM H. SPOONER, Chairman.

As we endeavor to fulfil the requirements of our official year in a brief retrospect of the work of the Society in this department, our special duty is to transcribe the successful achievements of the various cultivators who make the exhibitions valuable by their contributions.

NEW AND RARE PLANTS AND FLOWERS.

The past season has been unusually prolific in the appearance of new, rare, and valuable plants and flowers, and we have noticed various seedlings of native and foreign origin which deserve attention.

Roses.—Hon. Francis B. Hayes, President of the Society, exhibited, February 5th, Hon. George Bancroft, one of the Bennett Seedling Pedigree Roses,—so called. Color, bright rosy crimson, shaded purple, with Bourbon foliage.

March 28, John B. Moore presented the following new roses:

Gloire de Bourg-la-Reine.—Scarlet red.

William Warden.—Light pink, of good form.

Ferdinand Chaffolte.—Brilliant red, shaded violet.

Mme. Oswald de Kerchove.—Of medium size; white shaded pink, centre tinted coppery; a desirable color.

Catherine Soupert.—White shaded rose, a new color.

In Mr. Moore's collection on the 5th of March, we noticed the variety Charles Darwin, of rich brownish crimson color.

Ellwanger & Barry, of Rochester, N. Y., presented at the Annual Rose Show a seedling from Gen. Jacqueminot, very much in the

way of François Michelon, but the flower was not in the best condition to judge of its true merits.

New Deutzia. — The Pride of Rochester, a seedling from *D. crenata flore pleno*, similar to its parent, but lighter in color, came from Ellwanger & Barry, Rochester, N. Y.

Clematis.—February 12th, we had, from President Hayes, six clematis in pots, in the varieties

Edith Jackman,	Prince of Wales,
Lady Londesborough,	Sir Garnet Wolseley,
Mrs. S. C. Baker,	Stella.

New Hardy Shrubs and Plants.—August 13, Jackson Dawson, of the Arnold Arboretum, exhibited foliage and flowers of hardy shrubs and plants, as follows:

Cephalanthus occidentalis.
Menziesia polifolia versicolor.
" " var. *alba.*
Erica vagans.
" " var. *capitata.*
" " " *alba.*
" *tetralix.*
Calluna vulgaris.
Oxydendrum arboreum.
Clethra alnifolia.
" *acuminata.*
Hypericum Kalmianum.
" *aureum.*
" *patulum.*
Hypericum prolificum.
Spiræa salicifolia, var. *Billardieri.*
" " " *Lenneana.*
" " " *rosea.*
" *eximia.*
Clematis Davidiana.
" *coccinea.*
" *flammula.*
" *tubulosa.*
Sambucus Ebulus.
Robinia hispida.
Hydrangea radiata.
" *arborescens.*

Hardy Perennials.—June 4th, Messrs. Woolson & Co., of Passaic, N. J., exhibited one of the best collections of Hardy Perennials ever shown in our Hall, under the following names:

Achillea tomentosa,
Æthionema cordifolia,
Allium serratum,
" *cæruleum*,
Amsonia angustifolia,
" " var. *Texana*,
" *Tabernæmontana*,
Anchusa Italica,
Anemone Pennsylvanica,
Anthericum Liliastrum,
Aquilegia cærulea,
Arenaria graminifolia,
Arethusa bulbosa,
Armeria plantaginea,

Brevoortia coccinea,
Calochortus flexuosus,
" *Gunnisonii*,
Ceanothus ovatus,
Clematis angustifolia,
Corydalis pallida,
Deutzia parviflora,
Dianthus Caryophyllus,
Dicentra eximia,
Gillenia trifoliata,
Hemerocallis Thunbergii,
Iris Sibirica, var. *sanguinea*,
Jamesia Americana,
Lathyrus palustris,
Lilium callosum,
" *Davuricum*,
" *pulchellum*,
" *Szovitzianum*,
" *tenuifolium*,
Pentstemon confertum, var. *cæruleom purpureum*,
Pentstemon ovatum,
Pentstemons — hybrids of *P. grandiflorum* and *P. Murrayanum*,
Phlox pilosa,
Polygonatum vulgare,
Psoralea esculenta,
Rhodotypus kerrioides,
Romulea, sp. from Asia Minor,
Rosa alba,
" *polyantha*,
" *rugosa*,
Silene maritima,
Spiraea Filipendula fl. pl.,
Thalictrum, sp. from Japan,
Valeriana officinalis,
Veronica amethystina,
" *prostrata*,
Xerophyllum asphodeloides,
Zygadenus Nuttallii,

and twenty-five varieties of German Iris.

Pansies.— From E. L. Beard came the finest collection we have ever seen of the chaste and delicately marked variety of Pansy Odier.

Delphiniums. — Seedlings exhibited by Dr. H. P. Walcott, were remarkably fine — the best presented for many years, with spikes very large and perfect in form, and the colors clearly defined.

E. Sheppard also exhibited new Delphiniums in improved varieties.

Iris Kæmpferi. — June 28, we had from Messrs. V. H. Hallock, Son, & Thorpe, of Queens, N. Y., a very fine assortment of seedling *Iris Kœmpferi*, and varieties.

July 9, Francis Parkman sent a collection of seedlings, and other varieties, even excelling his own productions of former years in the same class of plants.

Hollyhocks.—From John C. Hovey, July 23d and 30th, we had improved Seedling Japanese Hollyhocks. In two years Mr. Hovey has made a great improvement in his seedlings, and has succeeded in producing some remarkably chaste and pretty single, double,

and semi-double flowers, mostly with fringed or serrated edges; the colors varying from crimson feathered into pure white edges, and bright red feathered into a deep border of white, to pure white and deep purplish black feathered into a fringed edge of white, and other variations of color. The leaf is smoother than that of the ordinary hollyhock, and the flowers are more sparingly produced on the stem. They will prove great acquisitions, being particularly hardy.

We notice a great increase in the cultivation of hollyhocks, and the exhibits of this flower the past season, have been much larger than for many years, and wholly of seedlings; the principal contributors have been John B. Moore & Co., E. Sheppard, James Nugent, Miss E. M. Harris, and John L. Gardner.

New Lily.—President Hayes has exhibited the new *Lilium longiflorum var.*, having a variegated leaf with the old type of flower.

Gladioli.—J. F. C. Hyde has shown his seedling, Hyde's White, in the finest condition, and your Committee had another opportunity of seeing the plant at his grounds. Mr. Hyde has taken great care in the selection of the corms this season, and has fully fixed the flower in its character. The plant proves even more vigorous than last year, throwing up a strong flower stem four feet in height, crowned with a remarkably full spike of very large, well expanded flowers, facing boldly to one side. Many of the terminal flowers are semi-double. The growth is peculiarly vigorous, giving an average of three stems to each bulb; many of them have five, and we noticed one with seven stems, indicating a remarkably prolific character, which will greatly add to its favor with the public. Your Committee are unanimous in the opinion that it is the best white gladiolus yet introduced. A First Class Certificate of Merit was awarded to it three years ago, and we now recommend that the Prospective Prize of $40, for the best Seedling Flowering or Foliage Plant (for which it was entered three years ago), be awarded to James F. C. Hyde, for the Gladiolus Hyde's White.

James Cartwright exhibited on the 30th of July, his seedling, No. 128. Color, rosy white, flaked crimson, edges darkly blotched, a line of white running through the centre of each division; base of the perianth dark purple.

Papaver Umbrosum.—George Craft has several times shown this new annual. It has a single flower; color bright rich crimson

with a deep black spot on each petal; a free bloomer and very showy, and, with the increasing taste for the single varieties of this plant, will prove a popular sort.

Variegated Dianthus. — This was from Henry R. Comley. The leaves are half green and half white, retaining their variegation in the hottest sun. It is perfectly hardy.

Single Dahlias.—From E. Sheppard came new single flowered dahlias; particularly noticeable were Paragon (dark maroon color), Cervantesii, and Lutea.

Samuel Smith, of Newport, R. I., exhibited very choice varieties of the same flower.

Hovey & Co. have also shown flowers of this class.

Chrysanthemums.—The Seedlings from Dr. H. P. Walcott were noticeable as a successful experiment in horticultural science, and perhaps the first attainment in this direction in this country. Undoubtedly another year will produce results worthy of the highest commendation.

Pelargoniums.—May 7th, we had from William A. Bock a large collection of Seedling Pelargoniums, many of them very good flowers. We noticed No. 1, a double, and No. 16, single flowered, as promising.

June 28th, V. H. Hallock, Son, & Thorpe, of Queens, N. Y., exhibited a very choice collection of Double Pelargoniums, the greater part of them seedlings raised by Mr. Thorpe of this firm; the following descriptions are by Messrs. Hallock and Thorpe.

Mrs. E. G. Hill.—Very large trusses; color pale blush, overlaid with a delicate lavender shade.

Peter Henderson.—Color bright orange scarlet, fine shape.

Richard Brett.—Orange color—a new shade of color among double varieties; very double.

The Blonde.—Deeply shaded orange, base of petals white; distinct margin of white around each.

Remarkable.—An improved Ernest Lauth, with better shaped flowers and of a deeper shade.

Hazel Kirke.—With immense trusses of rich crimson flowers; short jointed growth.

Robert George.—Deep crimson scarlet; of great size; a free flowerer.

Messrs. Hallock also exhibited the following varieties:

Apple Blossom,
Cheerfulness,
Effective,
Henry Cannell,
J. H. Klippart,
Mrs. Charles Pease,
William Hamilton.

Gloxinias.—Fine strains of seedlings have been shown by Hon. Francis B. Hayes and E. Sheppard.

Alternantheras.—*A. paronychoides major aurea*, was shown by E. Sheppard, August 9th. Color, rich golden yellow; habit dwarf and compact.

Henry Ross exhibited at the Annual Exhibition, the new *Alternanthera latifolia aurea*, raised by himself. Leaves broad and smooth, of a rich yellow color, terminated with yellow, green, and orange, coloring very early; habit, compact. A distinct and decided acquisition among bedding plants.

Indian Azaleas. — March 5th, we had from Hon. Marshall P. Wilder, a seedling which indicates a new break in the character of this beautiful plant, with a peculiar double flower; in color, light rose pink, and blooming in clusters of from eight to twelve flowers, in a truss similar to that of the rhododendron, with crested petals. As Col. Wilder requested the Committee to affix a name to the plant, they concluded to give it the name of its distinguished originator, Marshall Pinckney Wilder. It was in the fifth year from seed.

October 22, Hon. Francis B. Hayes presented a very attractive variety, producing immense trusses of semi-double flowers; color, dark orange, shaded with bright violet, and blotched with chocolate; plant a very strong grower, and a profuse and very early bloomer. It was raised by Hon. Marshall P. Wilder, and named by him Mrs. Francis B. Hayes.

Camellias. — On Thursday, March 3d, your Committee, by invitation of C. M. Hovey, visited the greenhouses of Hovey & Co. to look at the Camellias, which were in the best possible condition of bloom. The greater portion of their plants are seedlings grown by Mr. Hovey, who has made the cultivation of this beautiful flower almost a life work. As the result of his indefatigable labors, he had elegant plants, ten to fifteen feet high, covered with flowers and in fine condition, to show us. In addition to varieties mentioned in reports of former years, we noticed the following, the descriptions being furnished by Mr. Hovey:

Suzette Hovey.—A very distinct and most beautiful variety, in color quite new, as also in shape, having the cupped form so

well known and exemplified in the old Centfeuille rose, but double to the very centre; of a peculiar bright satiny rose color, more or less veined with carmine, and when about two-thirds open, extremely difficult to distinguish from the most exquisitely formed rose, except by its foliage; petals, round, regular, and finely formed. The plant is also remarkable for its very dense, branching habit, and the profusion of its flowers, which continue to open an unusually long period in succession. Leaves of medium size, ovate, nearly flat, very dark green.

Eva Corinne Hovey.—A very robust and vigorous growing variety, with large, broad, thick, handsome leaves; of regular, branching habit, and remarkably stout annual shoots, terminated with unusually large, globular buds, which do not open like most Camellias, by the gradual unfolding of the outer petals, but open from the centre outward, and while opening have a peculiar and beautiful appearance, each petal being tipped with white, as in some dahlias; as they gradually expand, the flowers are so full as to form almost a perfect ball, but keep their elegant cup shape until they drop. Color, light rose, tipped with white; very large; petals large and broad, incurved at the tip. A most distinct and separate variety, quite dissimilar to any other.

Mrs. J. R. Carter.—A very pretty flower, of a rosy crimson color, with a stripe of white in the centre of each petal. Flowers, medium size, very double, cup-shaped, and full to the centre; petals, large, round. Plant vigorous, of an erect habit; foliage of medium size. A beautiful variety, somewhat in the way of Jeffersonii, but superior to it.

John Cummings.—Another variety of distinct color, being dark ruddy scarlet, an entirely new tint. Size, medium, quite double, but not so high in the centre; petals well shaped. The plant is moderately vigorous, erect, with rather small leaves, but flowers freely and abundantly.

Messrs. Hovey's general collection of plants was looking remarkably well, and Mr. Hovey may well congratulate himself that at the age of three score years and ten, he retains his early enthusiasm for horticulture and a remarkable energy and intelligence, which few can hope to emulate.

March 5th, Hovey & Co. presented an extensive display of seedling camellias in twenty-one varieties.

April 2d, Hon. Marshall P. Wilder placed upon the tables his

new seedling camellias, Mrs. Julia Wilder, Jennie Wilder, and the variety A. J. Downing.

Bouvardias. — Nanz & Neuner, of Louisville, Kentucky, sent flowers of *Bouvardia elegans rosea multiflora* or *Williamsonii*, with a very large truss of flowers, color delicate rose, a lovely shade; also, their bouvardia Alfred Neuner, a new pure white double variety; each pip is doubled, like a tuberose; the plant is of a dwarf, vigorous habit, and, apparently, a profuse bloomer. The flowers were received through the mail, and not in the freshest condition, but by placing them in water, under suitable conditions, we were able to judge of their character. A member of the Society has the Alfred Neuner growing, and speaks very favorably of it as being as free a grower, and as profuse a bloomer as bouvardia Davidson.

New Fern. — At the Annual Exhibition, we had from Miss Mary Pratt the beautiful new crested fern *Lastrea Richardsii multifida*. This fern was sent out by Messrs. Veitch, and is described by them as a plant having fronds three feet high, including the stems, which are a foot long; the pinnæ are upwards of four inches long in the broadest part, and terminate in a densely fringed tuft of about fifty long, narrow, acute divisions. Its color is bright green.

Begonias.—August 13th, A. H. Fewkes showed seedling hybrid tuberous rooted Begonias; these were remarkably good flowers, and in desirable colors.

Eben Bacon has also contributed a very fine collection of these flowers.

The variety Marie Bouchet, with semi-double flowers, exhibited by President Francis B. Hayes, was also noticeable.

Dracænas. — At the Annual Exhibition, F. L. Harris presented another group of his fine seedling Dracænas — Nos. 2, 5, 10, 30, 100, and 125.

Epacris. — January 15, President Francis B. Hayes exhibited a very beautiful collection of new Epacris.

Ericas.—At the same time, and also on the 7th of May, President Hayes exhibited an equally fine collection of Ericas. We are glad to notice an increasing interest in these two classes of plants.

Orchids. — February 5, James Cartwright exhibited a beautiful specimen of *Sophronitis grandiflora* with twenty-one blooms, and

we doubt if it was ever shown in finer condition anywhere. On the 5th of March we had, from the same, a plant of *Dendrobium Wardianum*.

Stenocarpus Cunninghamii has been exhibited by Hon. Francis B. Hayes several times during the season; this is a plant not often found in collections, although not new. Williams describes it as "a slow growing but beautiful plant. The stem is erect, the leaves are from twelve to eighteen inches in length, four or five inches broad in the widest part; dark green on the upper surface. Flowers bright scarlet, and produced from the stem."

Anthurium Andreanum, from New Grenada, was exhibited by F. L. Ames. It is described as having leaves of deep green. The erect flower stalk is longer than the leaf stalk and terminates in a decurved spadix, ivory white at the base and yellow at the tip, about three inches long and as thick as a swan's quill.

Hymenocallis Macrostephana, of recent introduction, with a large cluster of pure white flowers, was also shown by Mr. Ames.

Ipomæa Horsfalliæ is a stove climber, in bloom from November to Christmas; very free growing, from thirty-five to forty feet in length, with an evergreen leaf similar in shape to that of the *Ampelopsis quinquefolia*. Flowers, purple-crimson, in large clusters of a hundred or more in a cluster. This is not a new plant, but desirable in a collection. It was exhibited by Mr. Ames, with the two preceding, at the Chrysanthemum Show, November 9.

AZALEA AND ROSE SHOW.

March 17.

Indian Azaleas were not as largely shown as in some previous years. Francis B. Hayes, Marshall P. Wilder, Hovey & Co., H. H. Hunnewell, and Norton Brothers were the contributors, with about the usual varieties.

Roses were not very numerous. Francis B. Hayes, John B. Moore, Norton Brothers, and W. J. Vass made very good displays.

Greenhouse Plants were contributed by Hovey & Co. and Francis B. Hayes.

The Special Prize of a Silver Cup, value $20, for twenty stove

and greenhouse plants, distinct species, for nurserymen and florists only, was awarded to Hovey & Co. for

Alocasia gigantea,
Begonia rubra,
Chorozema varia,
Chrysanthemum Madam Farfeuillon,
Croton Youngii,
Dieffenbachia Bausei,
Dendrobium nobile,
Dracæna amabilis,
" *Goldieana*,
" *terminalis alba*,
Dracæna Youngii,
Eurya latifolia,
Latania Borbonica,
Martinezia erosa,
Pandanus Javanicus var.
" *utilis*,
" *Veitchii*,
Pelargonium Rollisson's Unique,
Rhododendron multiflorum,
Tropæolum tricolorum.

Orchids were exhibited by F. L. Ames and James Cartwright.

Forced Bulbs were shown only by John L. Gardner, but not of so fine quality as those he presented last season.

The Pelargonium Exhibition, May 7th, was not a success, no efforts being made to compete for any of the prizes for these plants.

RHODODENDRON SHOW.

June 4 and 11.

Owing to the backwardness of the season, the award of prizes for Rhododendrons was postponed for one week, to June 11th, at the recommendation of Mr. Hunnewell and other large contributors.

Mr. Hunnewell presented seventy-two named varieties which were very choice, but agreeably to his customary practice, they were not entered for competition.

Hon. Francis B. Hayes exhibited the finest group he has ever shown, a list of which is appended.

Album elegans,
Alexander Dancer,
Atrosanguineum,
Auguste Van Geert,
Baroness Lionel Rothschild,
Baron Schroder,
Blandyanum,
Brayanum,
Broughtoni,
Bylsianum,
Caractacus,
Charles Dickens,

Concessum,
Correggio,
Countess Cadogan,
Countess of Normanton,
Cynthia,
Decorator,
Delicatissimum,
Duchess of Edinburgh,
Duchess of Sutherland,
Earl of Shannon,
Everestianum,
Fastuosum flore pleno,
Fleur de Marie,
Francis B. Hayes,
Frederick Waterer,
General Canrobert,
George Cunningham,
Giganteum,
H. H. Hunnewell,
Iago,
James Bateman,
James Mason,
Jean Verschaffelt,
John Waterer,
Lady Annette de Trafford,
Lady Armstrong,
Lady Dorothy Nevill or Standard of Flanders,
Lady Eleanor Cathcart,
Lady Grenville,
Lord Selborne,
Madame Marie Van Houtte,
Marginatum purpureum.
Mirandum,
Miss Meta T. Wilson,
Mrs. Francis B. Hayes,
Mrs. John Waterer,
Mrs. Milner,
Mrs. Russell Sturgis,
Mrs. Shuttleworth,
Mrs. Thomas Agnew,
Nero,
Nivaticum,
Onslowianum,
Ornatum,
Papilionaceum,
Paxtoni,
Pelopidas,
President Van den Hecke,
Prince Camille de Rohan,
Princess Mary of Cambridge,
Purity,
Purpureum elegans,
Roseum elegans,
Roseum pictum,
Samuel Morley,
Scipio,
Sherwoodianum,
Sir Robert Peel,
Stella,
The Queen,
Tippoo Sahib,
Vandyke,
Verschaffeltii,
William Austin,

Mr. Hayes was awarded the first prize for thirty-six varieties, for eighteen, and for twelve. He also took both prizes for three trusses of blooms of one variety; the first with Lady Eleanor Cathcart, and the second with Mirandum.

Hardy Azaleas.— The prizes for Hardy Azaleas were awarded

on the 4th of June as scheduled. Hon. Francis B. Hayes took the first prize for eighteen varieties with flowers of

Adelaide,	Joseph Baumann,
Adorèe,	Macrantha eximia,
Arden,	Marie Verschaffelt,
Bessie Holdaway,	Mme. Marie Van Houtte.
Brilliant,	Nancy Waterer,
Calendulacea flammea,	Radiata,
Comte de Flandre,	Reine Louise,
Cuprea,	Unique,
Graf von Meran,	Saphira.

E. Sheppard took the first prize for six varieties with

Calendulacea elegans,	Fama,
Clémence,	Graf von Meran,
Cuprea,	Pallas.

For a cluster of trusses of one variety Benjamin G. Smith presented a beautiful cluster of Graf von Meran pleno.

Francis B. Hayes was the only contributor of *Azalea mollis*.

Early Clematis were not shown in as large quantities as we supposed they would be. Joseph H. Woodford exhibited a good collection on the 4th of June.

ROSE AND STRAWBERRY EXHIBITION.

June 28.

The exhibition this season was by far the largest and finest ever made by the Society, the quality of the flowers being exceptionally good. Owing to the prolonged coldness of the season the date was changed from Thursday, the 23d of June, as fixed in the Schedule, to Tuesday, the 28th.

Special Prizes.

William Gray, Jr., for the third time competed for and was awarded the Challenge Cup, for seventy-two as superb roses as were ever seen in our Hall and which justly deserved the award. His competitors this year were John B. Moore and Francis B. Hayes, who exhibited very fine flowers.

Mr. Gray presented the following varieties, three of each,

Caroline de Sansal,	Marguerite Brassac,
Comtesse d' Oxford,	Marie Finger,
Duchesse d' Aoste,	Marquise de Castellane,
Duchesse de Caylus,	Miss Hassard,
Édouard Morren,	Mlle. Bonnaire,
Étienne Levet,	Mme. Gabriel Luizet,
Exposition de Brie,	Mme. la Baronne de Rothschild,
Félix Génério,	Mme. Prosper Laugier,
François Michelon,	Mme. Victor Verdier,
John Hopper,	Perfection des Blanches,
Mabel Morrison,	Pierre Notting,
Magna Charta,	Richard Wallace.

For the third time the special prizes of silver cups were offered, and the competition for them was unusually brisk. A Silver Cup, value $25, for the best three roses of different varieties was awarded to William H. Spooner, for Duke of Edinburgh, Mme. la Baronne de Rothschild, and Victor Verdier.

A Silver Cup, value $25, for the best six roses of different varieties to J. S. Richards. The list of varieties was not furnished.

A Silver Cup, value $25, for the best twelve roses of different varieties to William Gray, Jr., for

André Dunand,	Magna Charta,
Charles Lefebvre,	Marie Beauman,
Édouard Morren,	Mlle. Eugénie Verdier,
Thomas Mills,	Mrs. Baker,
Jean Soupert,	Thomas Mills,
Mabel Morrison,	W. Wilson Saunders.

A Silver Cup, value $25, for the best three roses of one variety, to John B. Moore & Co., for Duke of Edinburgh.

A Silver Cup, value $25, for the best six roses of one variety, to Norton Brothers, for Mme. la Baronne de Rothschild.

A Silver Cup, value $25, for the best twelve roses of one variety, to John C. Chaffin, for Mme. la Baronne de Rothschild.

Society's Prizes.

Hardy Perpetual Roses. For six new varieties sent out since 1876, the first prize was awarded to John B. Moore & Co., for

Alfred K. Williams,	Doctor Sewell,
Barthélmy Joubert,	Grand Duc Nicolas,
Boïeldieu,	Princesse Blanche d'Orleans.

For the best twenty-four varieties, three of each, to John B. Moore & Co. for

Abbé Bramerel	Marguerite de St. Amand,
Charles Lefebvre,	Marie Beauman,
Duke of Wellington,	Marquise de Castellane,
Dupuy Jamain,	May Turner,
Ferdinand de Lesseps,	Mlle. Bonnaire,
Fisher Holmes,	Mme. Nachury,
General Forey,	Mme. Victor Verdier,
General Jacqueminot,	Paul Neron,
John Hopper,	Peach Blossom,
Jules Margottin,	Richard Wallace,
Kate Hausberg,	Thomas Mills,
Lyonnaise,	Vicomtesse de Vézins.

For twelve varieties, to John L. Gardner, and for the best six varieties, to the same. No list was furnished of either of these two.

For three varieties, to John B. Moore & Co., for Perfection des Blanches, Mrs. Laxton, and Duke of Edinburgh.

Moss Roses. For the best six varieties the first prize went to John B. Moore & Co. for

Comtesse de Murinais,	Prolific or Gracilis,
Lancel or Etna,	Violacée,
Laneï,	Zaïre.

For three varieties, to John B. Moore & Co., for Gloire des Mousseuses, Crested, and Quatre Saisons.

It will be noticed that the two fine old varieties Duke of Edinburgh and Mme. la Baronne de Rothschild still maintain their character as grand exhibition Roses.

Special Prize for Stove and Greenhouse Plants.

The Silver Cup of the value of $20, for the best Group of twenty Stove and Greenhouse Ornamental Foliaged Plants, was awarded to S. R. Payson, for

Adiantum Farleyense,	*Bertolonia Van Houttei*,
" *gracillimum*,	*Caladium Chantinii*,
Alocasia Sedeni,	" *Herold*,
" *Thibautiana*,	" *Souvenir de Mme. André*,
Artocarpus Cannonii,	

Cocos Weddelliana,
Croton Lord Derby,
" *Queen Victoria*,
" *Williamsii*,
Cyanophyllum magnificum,
Dieffenbachia Bausei,
Dracœna Baptistii,
" *Goldieana*,
" *Leopoldii*,
Hydrangea Japonica var.,
Pandanus Veitchii.

ANNUAL EXHIBITION.

SEPTEMBER 13, 14, 15, AND 16.

This presented special attractions from the fact that the American Pomological Society, by invitation, made its exhibition in our Halls, while the display of plants and flowers was held at Music Hall. The latter was somewhat differently arranged from the usual plan, and with excellent effect, having through its centre a platform containing about eight hundred square feet of surface upon which were grouped by H. H. Hunnewell and Samuel R. Payson splendid collections of plants, arranged with artistic skill, and blending their varied hues with perfect success. On each side were two smaller platforms filled with plants from F. L. Ames, Hovey & Co., J. Warren Merrill, Hon. Francis B. Hayes, John L. Gardner, and Miss Pratt; these were choice in quality, though not all as large as those in the central group, which together with them, filled the body of the Hall with a mass of beautiful foliage. Upon the stage in front of the organ, William Gray, Jr., placed some fine tropical plants, and on the front edge were ranged a row of caladiums from Messrs. Hovey & Co., and Edwin Sheppard. At the sides of the Hall were stands filled with cut flowers by Mrs. A. D. Wood, Mrs. E. M. Gill, Messrs. Hovey & Co., C. W. Ross, J. W. Manning, William S. Eweli, James Nugent, and others, reflecting the greatest credit on all concerned in the display, which was the finest we have ever seen.

The seats were removed from the front lower gallery, and two rows of stands for flowers placed there, which were filled with fine collections of gladioli from James Cartwright, Norton Brothers, and A. McLaren; native flowers from Mrs. C. N. S. Horner and Miss M. E. Carter; and foliage and flowers of rare hardy trees and shrubs from the Arnold Arboretum and W. C. Strong & Co. Under the gallery Mr. Manning arranged a large assortment of evergreens, and baskets filled with plants from Mr. Ewell, were suspended

from the front, where there was also a display of orchids from Mr. Ames.

Special Prizes.

Stove and Greenhouse Plants. S. R. Payson was awarded the Silver Cup of the value of $40, for twelve Ornamental Foliaged Stove and Greenhouse Plants. They were

Alocasia gigantea,
Anthurium crystallinum,
Cocos Weddelliana,
Croton fasciatus,
" *Veitchii*,
Dracæna Baptistii,
Dracæna Hendersonii,
Erythrina marmorata,
Maranta Van den Heckei,
Pandanus Veitchii,
Phyllotænium Lindeni,
Sphærogyne latifolia.

The second prize for the same, a Silver Cup of the value of $25, was awarded to F. L. Ames, for

Adiantum Farleyense,
Alocasia Sedeni,
" *zebrina*,
Ceroxylon niveum (Wax Palm),
Croton angustifolium,
" *variabilis*,
Curculigo recurvata variegata,
Dracæna Baptistii,
Ficus Parcelli,
Maranta Lindeni,
" *virginalis*,
Nepenthes distillatoria.

F. L. Ames took the Silver Cup of the value of $40, for ten Stove and Greenhouse plants — five foliage, and five in bloom, with the following:

Foliage Plants.

Adiantum amabile,
Areca lutescens,
Croton Queen Victoria,
Cyanophyllum magnificum,
Dracæna Hendersonii,

Flowering Plants.

Allamanda Schottii,
Begonia rubra,
Dipladenia Brearleyana,
Ixora Williamsii,
Odontoglossum grande.

The second prize for the same, a Silver Cup of the value of $20, was awarded to H. H. Hunnewell, for the following:

Foliage Plants.

Areca crinita,
Croton fasciatus,
Dracæna Bella,
Maranta fasciata,
Sphærogyne latifolia,

Flowering Plants.

Anthurium Scherzerianum,
Begonia rubra,
Clerodendrom fallax,
Ixora Amboinensis,
Nerium Oleander - album flore pleno.

Dahlias. The Subscription Prize, a Piece of Plate of the value of $10, for the best twenty-four dissimilar blooms, was awarded to E. Sheppard, for

America,
Annie Neville,
Charles Leicester,
Constancy,
Duke of Connaught,
Emily Edwards,
Henry Glascock,
Hercules,
James Cocker,
J. C. Reid,
John Bennett,
John Lamont,
John MacPherson,
John Wyatt,
King of Primroses,
Letty Coles,
Michael Saunders,
Mrs. Hodgson,
Mrs. Swan,
Paul of Paisley,
Picotee,
Prince Bismark,
Stafford Gem,
Vivid.

CHRYSANTHEMUM SHOW.

November 9.

Although very good, this was not as large as in some former years, the frost early in October undoubtedly injuring the plants to a certain extent. The contributors of plants were Dr. H. P. Walcott, H. L. Higginson, and Norton Brothers. Cut blooms were shown by Dr. Walcott, E. W. Wood, B. G. Smith, Mrs. E. M. Gill, and E. Sheppard.

Orchids were shown by F. L. Ames, in his usual choice kinds.

Miss E. H. Craft presented for the third time a design of autumn flowers, excelling her previous efforts. The design was the object of universal admiration for its beauty of form and exquisite combination of colors.

MISCELLANEOUS EXHIBITS.

President Francis B. Hayes has been a constant contributor throughout the season, his exhibits being peculiarly valuable, and in variety of flowers embracing a wide range from week to week,

seldom duplicating his previous shows, and thereby adding greatly to the life and variety of our weekly displays.

Cut Flowers. — The shows during the season have been remarkably good; Mrs. A. D. Wood, Mrs. E. M. Gill, James Nugent, Mrs. L. P. Weston, George Craft, and E. Fewkes, competing for the prizes.

Vases of Flowers. — We notice a great improvement in these.

Annuals. — The prizes for Annuals, such as Petunias, Phlox Drummondii, Sweet Peas, Tropæolums, Double Zinnias, Dianthus, and Marigolds, have found a large competition, and the displays were remarkably good.

Perennial Phloxes from John B. Moore & Co. were noticeably fine.

Gladioli have not been shown in as large quantities as last season, but very good flowers have appeared from time to time. August 20th, J. F. Marble was awarded the first prize for twenty named varieties in excellent flowers; George Craft, the first for ten spikes; R. T. Jackson, for six spikes, and Franklin Batcheller the prize for a single spike, the variety being Baroness Burdett Coutts — a very large and beautiful flower; color, delicate lilac tinged with rose. It is of very vigorous growth.

The exhibitors for the general display were James Cartwright, George Craft, and Herbert Gleason.

Nymphæas. — August 20th, Edward Haskell, of New Bedford, presented a fine assortment of *Nymphæas* in the varieties *rubra*, *rosea*, *alba*, and *cærulea*. Mr. Haskell is a very successful cultivator of this beautiful genus, and his collection is perhaps unequalled in this section of the country.

Native Flowers have not been shown as frequently as in former years, but on the 6th of August, the collections of Mrs. C. N. S. Horner and Mrs. A. J. Dolbear were very large, embracing a great variety, with the names attached.

On the 7th of May, E. H. Hitchings presented several rare varieties, viz.: — *Nardosmia palmata* (never shown here before), *Viola Canadensis*, *V. rostrata*, *Asarum Canadense*, and *Gaultheria procumbens var.*

June 28th, the following Alpine Plants, collected on the Crawford bridle path, Mount Washington, N. H., by Edwin Faxon, were shown:

Arctostaphylos alpina,
Azalea procumbens,
Diapensia Lapponica,
Empetrum nigrum,
Potentilla frigida,
Rhododendron Lapponicum,
Rubus Chamœmorus.

August 27th, Charles E. Marsh and Charles E. Pecker presented a new variety of *Nymphœa* (Pond lily), three weeks earlier than the common white. It was found two miles from the Kennebec river.

September 3, O. M. Holmes exhibited *Nelumbium luteum*, a very rare native species.

At the Annual Exhibition we had from Mrs. Catherine Starbuck, of Nantucket, a collection of plants; among them the following, which have never been shown here before:—*Hypericum adpressum*, *Sabbatia gracilis*, *Spiranthes simplex*, and *Erythrœa spicata*.

The amount of money prizes and gratuities awarded, is $1,494, out of the appropriation of $1,500.

Prizes have been awarded from the Hunnewell fund to the amount of $64.

All which is respectfully submitted.

Wm. H. Spooner,
E. H. Hitchings,
J. H. Woodford,
F. L. Harris,
James Cartwright,
Patrick Norton,
Charles W. Ross,
} *Committee on Plants and Flowers.*

PRIZES AND GRATUITIES AWARDED FOR PLANTS AND FLOWERS.

January 1.

Gratuity :—

Francis B. Hayes, Display of Flowers, ... $1 00

January 8.

Gratuities :—

Francis B. Hayes, Display of Flowers, ... 1 00
Mrs. E. M. Gill, " " " 1 00
John L. Gardner, *Erica Willmorei*, ... 2 00

January 15.

Gratuities :—

Mrs. E. M. Gill, Display of Flowers, ... 1 00
W. C. Strong, Moss Rose in pot, ... 1 00

January 22.

Gratuity :—

Mrs. E. M. Gill, Display of Flowers, ... 1 00

January 29.

Gratuities :—

Francis B. Hayes, Display of Flowers, ... 2 00
James O'Brien, *Dendrobium nobile* and Lilacs, ... 1 00
Henry L. Higginson, Bougainvillea and Bignonia, ... 1 00

February 5.

Gratuities :—

Francis B. Hayes, Display of Flowers, ... 2 00
W. C. Strong & Co., Cut Roses, ... 3 00
" " " " Rose in pot, ... 2 00
Hovey & Co., Camellias, ... 1 00

February 12.

Gratuities :—

John E. Peabody, Collection of Plants, ... 5 00
Francis B. Hayes, Display of Flowers, ... 2 00
Mrs. E. M. Gill, " " " 1 00
W. C. Strong & Co., Hybrid Perpetual Roses, ... 2 00

David Allan, *Clianthus Dampieri*, ... $1 00
John L. Gardner, Violets, ... 2 00
Hovey & Co., Large Display of Camellias, ... 5 00

FEBRUARY 19.

Gratuity:

Hovey & Co., Camellias, ... 2 00

FEBRUARY 26.

Gratuities:—

Francis B. Hayes, Display of Flowers, ... 2 00
Benjamin G. Smith, Carnations, ... 1 00
Hovey & Co., Camellias, ... 2 00
Joseph H. Woodford, Hyacinths, ... 1 00
C. B. Gardiner, Cyclamen, ... 1 00

MARCH 5.

Gratuities:—

John B. Moore, Hybrid Perpetual Roses, ... 3 00
Hovey & Co., Camellias, ... 2 00
Henderson Inches, Hyacinths, ... 1 00
Francis B. Hayes, Display of Flowers, ... 2 00
Mrs. E. M. Gill, " " " 1 00

MARCH 12.

Gratuities:—

Francis B. Hayes, Display of Flowers, ... 2 00
Hovey & Co., Camellias, ... 1 00

AZALEA AND ROSE SHOW.

MARCH 17.

Special Prize.

OFFERED BY A MEMBER OF THE SOCIETY.

For Nurserymen and Florists only.

Group of twenty Stove and Greenhouse Plants, distinct species, grown in pots not over eight inches in diameter, six to be in bloom, Hovey & Co., Silver Cup, value, ... $20 00

Society's Prizes.

INDIAN AZALEAS, Six named varieties, in pots, Francis B. Hayes, . $12 00
Two named varieties, H. H. Hunnewell, ... 8 00
Specimen Plant, Norton Brothers, ... 5 00

Four named varieties, in not exceeding ten-inch pots, Marshall P. Wilder,	$8 00
Single plant, in not exceeding a six-inch pot, Hovey & Co.,	4 00
HYBRID PERPETUAL ROSES.—Single plant. Francis B. Hayes,	5 00
Twelve cut blooms, of six named varieties, John B. Moore,	6 00
Six cut blooms, of four named varieties, John B. Moore,	3 00
Second, John B. Moore,	2 00
Single bloom, John B. Moore,	2 00
Second, Norton Brothers,	1 00
TENDER ROSES.—Display in dish, basket, or vase, William J. Vass,	5 00
Third prize to Norton Brothers,	3 00
GREENHOUSE PLANTS.—Specimen, in bloom, other than Azalea or Orchid, Hovey & Co.,	5 00
Second, Francis B. Hayes,	4 00
ORCHIDS.—Three plants, in bloom, F. L. Ames,	10 00
Second, James Cartwright,	6 00
Single plant in bloom, F. L. Ames,	5 00
Second, F. L. Ames,	3 00
CYCLAMENS.—Six plants, in not over eight-inch pots, in bloom, C. B. Gardiner,	4 00
HEATH.—Single plant, in bloom, John L. Gardner,	3 00
Second, Mrs. E. M. Gill,	2 00
PRIMULAS.—Three plants, single flowered, in bloom, John L. Gardner,	2 00
Three plants, double flowered, in bloom, Hovey & Co.,	2 00
VIOLETS.—Six pots, in bloom, John L. Gardner,	3 00
HYACINTHS.—Twelve bulbs, in pots, John L. Gardner,	5 00
Six bulbs, in pots, John L. Gardner,	4 00
Single bulb, in pot, John L. Gardner,	2 00
TULIPS.—Six, in pots, John L. Gardner,	3 00
NARCISSUS.—Four six-inch pots, John L Gardner,	3 00
CAMELLIAS.—Display of named varieties, cut flowers with foliage, not less than twelve blooms, Hovey & Co.,	4 00
Second, Hovey & Co.,	3 00
Six cut blooms, Hovey & Co.,	3 00
Second, John L. Gardner,	2 00
CUT FLOWERS.—Display filling 50 bottles, not including Roses, Mrs. E. M. Gill,	3 00
Second, Mrs. A. D. Wood,	2 00
HAND BOUQUETS.—Pair, James Nugent,	3 00
BASKET OF FLOWERS.—Best arranged, the second prize to Mrs. E. M. Gill,	2 00

Gratuities:

Marshall P. Wilder, Azaleas in pots,	4 00
Francis B. Hayes, " " "	4 00

William J. Vass, Hybrid Perpetual Roses,	$2 00
Norton Brothers, " " "	2 00
W. C. Strong & Co., " " " in pots,	2 00
Mrs. A. D. Wood, Basket of Flowers,	1 00
Hovey & Co., Display of Camellias,	3 00
E. Sheppard, Pansies,	1 00
" " Display of Flowers,	1 00
Mrs. L. P. Weston, " " "	2 00
Francis B. Hayes, " " "	2 00
" " " Rhododendrons and Azaleas,	2 00
" " " Camellias,	1 00
James Cartwright, Orchids,	5 00
Norton Brothers, Plants,	4 00
Hovey & Co., "	3 00

March 28.

Gratuities: —

John B. Moore, Hybrid Perpetual Roses,	1 00
W. C. Strong & Co., Mme. la Baronne de Rothschild Roses,	1 00
Hovey & Co., Camellias,	2 00
Francis B. Hayes, Display of Flowers,	2 00

April 2.

Gratuities: —

Francis B. Hayes, Azalea Charmer,	1 00
Hovey & Co., Camellias,	1 00
Francis B. Hayes, Display of Flowers,	2 00
Mrs. E. M. Gill, " " "	1 00

April 9.

Gratuities: —

Francis B. Hayes, Heaths and Amaryllis,	2 00
John E. Peabody, Plants,	5 00
" " Orchids,	2 00
John L. Gardner, Polyanthus,	2 00
Hovey & Co., Camellias,	1 00
" " Azaleas,	2 00
" " Epidendrums,	1 00
" " Lily of the Valley,	1 00
Francis B. Hayes, Display of Flowers,	2 00

April 16.

Gratuity: —

Francis B. Hayes, Display of Plants and Flowers,	2 00

April 23.

Gratuities: —

John L. Gardner, Plants,	10 00
Francis B. Hayes, Ericas,	2 00

Hovey & Co., Camellias,	$1 00
Francis B. Hayes, Display of Flowers,	1 00
Mrs. E. M. Gill, " " "	1 00

April 30.

Gratuities: —

Francis B. Hayes, Display of Flowers,	1 00
Mrs. L. P. Weston, " " "	1 00
Mrs. E. M. Gill, " " "	1 00
Hovey & Co , " " " and Plants,	1 00
Mrs. A. D. Wood, " " "	1 00
" " " " Lilies in pots,	1 00
B. G. Smith, Pansies,	1 00

PELARGONIUM EXHIBITION.

May 7.

Calceolarias.—Six varieties in pots, John E. Peabody,	$5 00
Second, John E. Peabody,	3 00
Single Plant, John E. Peabody,	1 00
Table Design, other than a Basket of Flowers.—Mrs. A. D. Wood,	3 00
Second, Mrs. E. M. Gill,	2 00

Gratuities: —

Hovey & Co., Pelargoniums in pots,	3 00
William A. Bock, Seedling Pelargoniums,	3 00
John Parker, Pelargonium Peter Grieve,	1 00
B. G. Smith, Pansies and Andromedas,	1 00
Mrs. E. M. Gill, Plants and Flowers,	2 00
Mrs. A. D. Wood, " " "	2 00
Francis B. Hayes, Display of Flowers,	2 00
Hovey & Co., " " "	2 00
Mrs. L. P. Weston, " " "	1 00
E. H. Hitchings, Native Plants,	1 00

May 14.

Gratuities: —

E. Sheppard, *Cattleya Mossiæ*,	2 00
" *Hydrangea Otaksa*,	1 00
" Pelargoniums,	1 00

May 21.

Gratuities: —

Francis B. Hayes, *Erythrina Crista-galli*,	1 00
Mrs. A. D. Wood, Display of Flowers,	2 00
Mrs. E. M. Gill, " " "	2 00
E. H. Hitchings, Native Flowers,	2 00
George E. Davenport, Native Flowers,	1 00

RHODODENDRON SHOW.

June 4.

Hunnewell Premiums.

Hardy Azaleas.—Eighteen named varieties, Francis B. Hayes,	$12 00
Six named varieties, E. Sheppard,	4 00
Second, B. G. Smith,	3 00
Cluster of trusses, of one variety, B. G. Smith,	2 00
Azalea Mollis.—Six trusses, of different varieties, Francis B. Hayes,	2 00

Society's Premiums.

Tree Pæonies.—Six named varieties, Marshall P. Wilder,	3 00
Second, Marshall P. Wilder,	2 00
Cut Flowers.—Display, filling 100 bottles, W. K. Wood,	4 00
Second, Mrs. E. M. Gill,	3 00
Hardy Flowering Shrubs.—Twelve named varieties, B. G. Smith,	3 00
Native Plants.—Display of named species and varieties, Mrs. C. N. S. Horner,	4 00
Clematis.—Early named varieties, display of cut blooms, Joseph H. Woodford,	3 00
Table Design, other than a Basket of Flowers, Mrs. A. D. Wood,	4 00

Gratuities:—

Francis B. Hayes, Ericas,	3 00
John B. Moore, Clematis, Iris, etc.,	2 00
Joseph Tailby, Carnations,	1 00
B. G. Smith, Pansies,	1 00
H. H. Hunnewell, Display,	5 00
Francis B. Hayes, "	5 00
John L. Gardner, "	2 00
E. Sheppard, "	2 00
Mrs. L. P. Weston, "	2 00
James Nugent, "	2 00
Hovey & Co., "	2 00
B. G. Smith, "	1 00

June 11.

Hunnewell Premiums.

Hardy Rhododendrons.—Thirty-six named varieties, one truss each, Francis B. Hayes,	15 00
Eighteen named varieties, Francis B. Hayes,	8 00
Second, John L. Gardner,	6 00
Twelve named varieties, Francis B. Hayes,	6 00
Three trusses of blooms, of one variety, Francis B. Hayes,	4 00
Second, Francis B. Hayes,	2 00

Gratuities:—

H. H. Hunnewell, Rhododendrons,	$6 00
Hovey & Co., Rhododendrons, Azaleas, and Clematis,	3 00
Mrs. L. P. Weston, Display of Flowers,	1 00
Edwin Faxon, Native Flowers from the White Mountains,	2 00
Francis B. Hayes, Display of Flowers,	3 00
E. Sheppard, " " "	2 00
Mrs. E. M. Gill, " " "	1 00
W. K. Wood, " " "	1 00

ROSE SHOW.

JUNE 28.

Special Prizes.

HYBRID PERPETUAL ROSES.—Twenty-four varieties, three specimens of each, William Gray, Jr., a Challenge Cup, value,	$150 00
Three roses, of different varieties, William H. Spooner, Silver Cup, value,	25 00
Six Roses, of different varieties, J. S. Richards, Silver Cup, value,	25 00
Twelve Roses, of different varieties, William Gray, Jr., Silver Cup, value,	25 00
Three Roses, of one variety, John B. Moore & Co., Silver Cup, value,	25 00
Six Roses, of one variety, Norton Brothers. Silver Cup, value,	25 00
Twelve Roses, of one variety, John C. Chaffin, Silver Cup, value,	25 00

Society's Prizes.

HARDY PERPETUAL ROSES.—Six new varieties, sent out since 1876, John B. Moore & Co.,	6 00
Twenty-four distinct named varieties, John B. Moore & Co.,	20 00
Second, Warren Heustis,	15 00
Twelve distinct named varieties, John L. Gardner,	10 00
Second, Francis B. Hayes,	8 00
Third, John B. Moore & Co.,	6 00
Six distinct named varieties, John L. Gardner,	6 00
Second, John B. Moore & Co.,	5 00
Third, J. S. Richards,	4 00
Three distinct named varieties, John B. Moore & Co.,	4 00
Second, Francis B. Hayes,	3 00
Third, Ellwanger & Barry, Rochester, N. Y.,	2 00
MOSS ROSES.—Six named varieties, three clusters of each, John B. Moore & Co.,	5 00
Second, John B. Moore & Co.,	3 00

Three named varieties, three clusters of each, John B. Moore & Co.,	$3 00
Second, William H. Spooner,	2 00
Tea and Bourbon Roses.—Twelve cut blooms, Norton Brothers,	3 00
General Display, of all classes, Norton Brothers,	10 00
Second, W. C. Strong & Co.,	8 00
Third, J. S. Richards,	5 00

Special Prize.

OFFERED BY A MEMBER OF THE SOCIETY.

Group of twenty Stove and Greenhouse Ornamental Foliaged Plants, S. R. Payson, Silver Cup, value,	20 00

Society's Prizes.

Stove and Greenhouse Flowering Plants.—Six distinct varieties, in bloom, F. L. Ames,	10 00
Second, John L. Gardner,	8 00
Specimen Plant.—Regard being had to new and rare varieties, F. L. Ames,	6 00
Second, John L. Gardner,	4 00
Herbaceous Pæonies.—Ten named varieties, Hovey & Co.,	3 00
Sweet Williams.—Thirty trusses, of not less than six distinct varieties, E. Sheppard,	3 00
Second, A. McLaren,	2 00
Third, Mrs. E. M. Gill,	1 00
Summer Herbaceous Plants.—Display of named species and varieties, filling twenty-five bottles, Hovey & Co.,	4 00
Second, James Nugent,	3 00
Vase of Flowers.—Best arranged, in one of the Society's glass vases, James O'Brien,	5 00
Second, Mrs. A. D. Wood,	4 00
Third, Francis B. Hayes,	3 00

Gratuities:—

Ellwanger & Barry, Rochester, N. Y., Display of Roses,	10 00
William H. Spooner, " " "	3 00
O. B. Hadwen, " " "	1 00
Norton Brothers, Basket of Roses,	1 00
Patten & Co., Tender Roses,	2 00
E. Sheppard, Tuberous Begonias, and other plants,	10 00
Ellwanger & Barry, Trees and Shrubs,	3 00
James Cartwright, Orchids,	2 00
John C. Hovey, Pæonies and Pyrethrums,	1 00
Miss E. M. Harris, Pæonies,	1 00
William S. Ewell, Display,	2 00
Mrs. A. D. Wood, "	2 00

Mrs. L. P. Weston, Display,	$2 00
Francis B. Hayes, "	2 00
E. Sheppard, "	1 00
Hovey & Co., "	1 00
Miss A. C. Kenrick, "	1 00

July 2.

Hybrid Perpetual Roses.—Twenty-five blooms, John B. Moore & Co.,	5 00
Second, John B. Moore & Co.,	4 00
Cut Flowers.—Display, filling 100 bottles, W. K. Wood,	4 00
Second, Mrs. E. M. Gill,	3 00
Third, James Nugent,	2 00
Table Design.—Best arranged, James O'Brien,	3 00
Gratuities:—	
Francis B. Hayes, Display of Roses,	3 00
" " " " of Clematis,	1 00
B. G. Smith, Roses and Pæonies,	1 00
Mrs. E. S. Joyce, Display of Flowers,	1 00

July 9.

Lilium Candidum.—Twelve spikes, Herbert Gleason,	3 00
Second, B. G. Smith,	2 00
Vase of Flowers.—Best arranged, in one of the Society's Glass Vases, James O'Brien,	5 00
Second, Mrs. A. D. Wood,	3 00
Gratuities:—	
Jacob W. Manning, *Iris Kæmpferi*,	1 00
" " " Display of Flowers,	1 00
Francis B. Hayes, " " "	2 00
W. K. Wood, " " "	1 00
Miss E. M. Harris, " " "	1 00
Mrs. E. S. Joyce, " " "	1 00
Mrs. E. M. Gill, " " "	1 00

July 16.

Hollyhocks.—Twelve blooms, of twelve distinct colors, John L. Gardner,	4 00
Six blooms, of six distinct colors, John B. Moore & Co.,	2 00
Second, Hovey & Co.,	1 00
Three blooms, of three distinct colors, E. Sheppard,	1 00
Single spike, John B. Moore & Co.,	2 00
Second, John B. Moore & Co.,	1 00
Cut Flowers.—Display, filling 100 bottles, W. K. Wood,	4 00
Second, Mrs. E. M. Gill,	3 00
Third, Mrs. L. P. Weston,	2 00

Gratuities:—

Herbert Gleason, *Lilium candidum*, ... $2 00
E. Sheppard, Hollyhocks, ... 1 00
" " Pelargoniums, ... 1 00
Hovey & Co., Display of Flowers and Foliage, ... 2 00
George Craft, " " " 2 00
J. W. Manning, " " " 1 00
Mrs. E. S. Joyce, " " " 1 00

JULY 23.

PERENNIAL PHLOXES.—Six distinct named varieties, one spike of each, the second prize to E. Sheppard, ... 2 00
PELARGONIUMS.—Twelve double and single varieties, E. Sheppard, 2 00
Second, Mrs. E. M. Gill, ... 1 00

Gratuities:—

John B. Moore & Co., Hollyhocks, ... 1 00
Miss E. M. Harris, " 1 00
James Nugent, " 1 00
E. Sheppard, " 1 00
John L. Gardner, *Erica Parmentieriana rosea*, ... 1 00
Edwin Fewkes, Petunias, ... 1 00
George Craft, Sweet Peas and Nasturtiums, ... 1 00
" " Display of Flowers, ... 2 00
Francis B. Hayes, " " " 2 00
W. K. Wood, " " " 2 00
J. W. Manning, " " " 1 00
Mrs. E. S. Joyce, " " " 1 00
E. H. Hitchings, Native Plants, ... 1 00

JULY 30.

HYBRID PERPETUAL ROSES.—Twenty-five blooms, Francis B. Hayes, ... 5 00
CUT FLOWERS.—Display, filling 100 bottles, Mrs. E. M. Gill, . . 4 00
Second, George Craft, ... 3 00
Third, W. K. Wood, ... 2 00
Collection of not less than eighteen named species of Annuals and Herbaceous Perennials, Mrs. E. S. Joyce, ... 3 00
Second, George Craft, ... 2 00
VASE OF FLOWERS.—Best arranged, in one of the Society's glass vases, Mrs. A. D. Wood, ... 2 00
Second, James O'Brien, ... 1 00

Gratuities:—

Francis B. Hayes, Hydrangeas, ... 3 00
John B. Moore, Phloxes and Hollyhocks, ... 1 00

Francis B. Hayes, Display of Flowers, ... $2 00
E. Sheppard, " " " 1 00
George Craft, " " " 1 00
R. B. Cummings, Bouquets of Native Flowers, ... 1 00

August 6.

Perennial Phloxes —Ten distinct named varieties, one spike each,
John B. Moore & Co., ... 3 00
Second, John B. Moore & Co., ... 2 00
Petunias.—Collection, filling 30 bottles, Edwin Fewkes, . . 3 00
Second, James Nugent, ... 2 00
Third, George Craft, ... 1 00
Cut Flowers.—Display, filling 100 bottles, Mrs. E. M. Gill, . . 4 00
Second, W. K. Wood, ... 3 00
Third, C. W. Ross, ... 2 00
Native Flowers.—Collection, Mrs. C. N. S. Horner, . . . 3 00
Second, Mrs. A. J. Dolbear, ... 2 00

Gratuities:—

J. S. Richards, Gladioli, ... 1 00
Francis B. Hayes, Display of Flowers, ... 2 00
Hovey & Co., " " " 1 00
E. Sheppard, " " " 2 00
Mrs. E. S. Joyce, " " " 1 00
R. B. Cummings, Bouquet of Native Flowers, ... 1 00

August 13.

Phlox Drummondi.—Fifty bottles, not less than six varieties,
James Nugent, ... 3 00
Second, James Cartwright, ... 2 00
Cut Flowers.—Not less than eighteen named species of Annuals and Herbaceous Perennials, Hovey & Co , ... 3 00
Second, George Craft, ... 2 00

Gratuities:—

John L. Gardner, Orchids, ... 3 00
George Craft, Gladioli, ... 2 00
Henry R. Comley, Dianthus, ... 1 00
John B. Moore & Co., Gladioli, ... 1 00
J. W. Manning, Phloxes, ... 1 00
E. Sheppard, Dahlias, ... 1 00
A. P. Calder, *Nymphæa odorata*, var. *rosea*, ... 1 00
Francis B. Hayes, Display of Flowers, ... 3 00
Mrs. E. M. Gill, " " " 1 00
W. K. Wood, " " " 1 00
Miss E. M. Harris, Design of Ferns and Native Flowers, . . 1 00

August 20.

Asters. — Large Flowered, or Victoria,—Thirty blooms, not less than ten varieties, John L. Gardner, ... $4 00
Second, James Nugent, ... 3 00
Third, Francis B. Hayes, ... 2 00
Chrysanthemum. — Thirty blooms, not less than eight varieties, John L. Gardner, ... 4 00
Victoria, or Chrysanthemum, or both.—Six plants in pots, John L. Gardner, ... 4 00
Pompon.—Six plants in pots, F. Skinner, Jr., ... 4 00
Sweet Peas.—Display, filling 25 bottles, Mrs. A. D. Wood, . . 3 00
Second, George Craft, ... 2 00
Basket of Flowers.—Best arranged, Mrs. E. M. Gill, . . . 2 00

Gratuities: —

Francis B. Hayes, New Begonias, ... 2 00
" " Display of Flowers, ... 3 00
John B. Moore & Co., " " " 2 00
B. G. Smith, " " " 1 00

August 20.

Gladioli.—Twenty named varieties, in spikes, J. F. Marble, . . 6 00
Ten named varieties, in spikes, George Craft, ... 4 00
Second, John B. Moore & Co., ... 3 00
Six named varieties, in spikes, R. T. Jackson, ... 3 00
Single spike, named, Franklin Bacheller, ... 1 00
Display of named and unmamed varieties, filling 100 bottles, James Cartwright, ... 6 00
Second, George Craft, ... 4 00
Third, Herbert Gleason, ... 2 00

Gratuities: —

E. Sheppard, Dahlias and Pelargoniums, ... 1 00
John L. Gardner, Dahlias, ... 1 00
Mrs. A. D. Wood, Display of Flowers, ... 2 00
Mrs. E. M. Gill, " " " 2 00
Hovey & Co., " " " 1 00
Mrs. E. S. Joyce, " " " 1 00

August 27.

Tropæolums.—Display filling 25 bottles, William H. Spooner, . 3 00
Second, Francis B. Hayes, ... 2 00
Cut Flowers.—Display filling 100 bottles, Mrs. E. M. Gill, . . 4 00
Second, Edwin Fewkes, ... 3 00
Third, Mrs. A. D. Wood, ... 2 00

Gratuities:

James Cartwright, Gladioli, ... $2 00
George Craft, " 2 00
John L. Gardner, Asters, ... 1 00
James Nugent, Asters and Tropæolums, ... 1 00
E. Sheppard, New Dahlias and Phloxes, ... 2 00
Francis B. Hayes, Display of Flowers, ... 2 00
John B. Moore & Co., " " " 2 00
Miss M. E. Carter, Native Flowers, ... 1 00

SEPTEMBER 3.

HYBRID PERPETUAL ROSES.—Twenty-five blooms, Francis B. Hayes, 3 00
DOUBLE ZINNIAS.—Twenty flowers, not less than six varieties, Francis B. Hayes, ... 4 00
Second, George Craft 3 00
Third, James Nugent, ... 2 00
DIANTHUS.—Annual and Biennial varieties,—collection filling 50 bottles, Henry R. Comley, ... 3 00
Second, Hovey & Co., ... 2 00
MARIGOLDS.—Twenty-five bottles, three flowers in each, Hovey & Co., 3 00
Second, Francis B. Hayes, ... 2 00
Third, George Craft, ... 1 00
CLEMATIS.—Display of cut blooms, Francis B. Hayes, . . . 3 00

Gratuities:

George Craft, Gladioli, ... 2 00
Mrs. A. D. Wood, Display of Flowers, ... 2 00
Mrs. L. P. Weston, " " " 1 00
Mrs. C. N. S. Horner, Native Flowers, ... 2 00

ANNUAL EXHIBITION.

SEPTEMBER 13, 14, 15, and 16.

Special Prizes.

OFFERED BY A MEMBER OF THE SOCIETY.

TWELVE STOVE AND GREENHOUSE PLANTS.—Ornamental Foliage, in not over twelve-inch pots, S. R. Payson, Silver Cup, value, $40 00
Second, F. L. Ames, Silver Cup, value, ... 25 00

OFFERED BY AN AMATEUR.

TEN STOVE AND GREENHOUSE PLANTS.—Five foliage and five in bloom, in not over ten-inch pots, not more than one orchid admissible, F. L. Ames, Silver Cup, value, ... 40 00
Second, H. H. Hunnewell, Silver Cup, value, ... 20 00

Subscription Prize.

DAHLIAS.—For the best twenty-four dissimilar blooms, E. Sheppard & Son, Piece of Plate, value, ... $10 00

Society's Prizes.

GREENHOUSE PLANTS.—Twelve Greenhouse and Stove Plants of different varieties, one Dracæna and one Croton admissible, H. H. Hunnewell, ... 30 00
Second, S. R. Payson, ... 25 00
SPECIMEN FLOWERING PLANT.—Francis B. Hayes, ... 5 00
Second, John L. Gardner, ... 4 00
VARIEGATED LEAVED PLANTS.—Six varieties not offered in the collection of greenhouse plants, Dracænas not admissible, H. H. Hunnewell, ... 12 00
Single specimen, not offered in any collection, H. H. Hunnewell, 5 00
Second, John L. Gardner, ... 4 00
CALADIUMS.—Six varieties, E. Sheppard & Son, ... 5 00
Second, Hovey & Co., ... 4 00
FERNS.—Six named varieties, J. Warren Merrill, ... 6 00
Second, F. L. Ames, ... 4 00
ADIANTUMS.—Six varieties, S. R. Payson, ... 6 00
Second, Hovey & Co., ... 4 00
TREE FERN.—Single Specimen, J. Warren Merrill, . . . 6 00
Second, Francis B. Hayes, ... 4 00
LYCOPODS.—Four named varieties, William Gray, Jr., . . . 3 00
DRACÆNAS.—Six named varieties, H. H. Hunnewell, . . . 8 00
PALM.—Single specimen, F. L. Ames, ... 5 00
Second, H. H. Hunnewell, ... 4 00
NEPENTHES.—Three plants, named, F. L. Ames, ... 6 00
AGAVES.—Six distinct varieties, John C. Hovey, ... 6 00
Second, Hovey & Co., ... 4 00
CACTI.—Twelve species and varieties, Benjamin Gray, . . . 5 00
SUCCULENTS.—Collection, of twelve species, other than Agaves, Yuccas, or Cacti, John C. Hovey, ... 5 00
BEGONIAS.—Tuberous-rooted,—Six named varieties, Francis B. Hayes, ... 5 00
GLADIOLI —Best display, and best kept during the exhibition, of named and unnamed varieties, filling 100 bottles, James Cartwright, ... 10 00
Second, A. McLaren, ... 8 00
DAHLIAS.—Twelve named varieties, John L. Gardner, . . . 5 00
Second, S. G. Stone, ... 4 00
Six named varieties, James Nugent, ... 3 00
Second, S. G. Stone, ... 2 00
Third, O. B. Hadwen, ... 1 00
Single named flower, Fancy or Self, John L. Gardner, . . . 2 00
Second, James Nugent, ... 1 00

Liliputian Dahlias.—General display, filling 25 bottles, J. F. Marble,	$3 00
Second, S. G. Stone,	2 00
Cut Flowers.—Best display, and best kept during the exhibition, filling 100 bottles, Mrs. A. D. Wood,	16 00
Second, Mrs. E. M. Gill,	14 00
Third, Hovey & Co.,	12 00
Basket of Flowers.—Best arranged and best kept during the Exhibition, Mrs. E. S. Joyce,	5 00
Gratuities:—	
Francis B. Hayes, Collection of Plants,	8 00
H. H. Hunnewell, " " "	6 00
Miss Pratt, " " "	5 00
John L. Gardner, " " "	4 00
William S. Ewell, " " "	4 00
Hovey & Co., " " "	4 00
Benjamin Gray, Nymphæas,	3 00
E. Haskell, "	1 00
Arnold Arboretum, Foliage of Hardy Trees and Shrubs,	5 00
John L. Gardner, Caladiums,	2 00
Hovey & Co., Succulents,	2 00
Norton Brothers, Gladioli,	2 00
L. W. Goodell, Dahlias and Gladioli,	1 00
Samuel G. Stone, Dahlias,	2 00
Edwin Sheppard, "	1 00
O. B. Hadwen, "	1 00
William S. Ewell, Hanging Baskets,	5 00
" " " Cut Flowers,	3 00
Miss A. C. Kenrick, Dish of Flowers,	1 00
Miss E. M. Harris, Stand of Flowers,	4 00
Henry R. Comley, Dianthus,	1 00
Robert Manning, *Cornus mascula*,	1 00
Francis B. Hayes, Display of Flowers,	5 00
C. W. Ross, " " "	3 00
James Nugent, " " "	3 00
Hovey & Co., " " "	1 00
J. W. Manning, " " "	1 00
Mrs. A. D. Wood, " " "	1 00
Miss M. E. Carter, Native Flowers,	3 00
Mrs. C. N. S. Horner, " "	3 00
Mrs. Catherine Starbuck, Native Plants,	1 00
E. H. Hitchings, " "	1 00

October 1.

Dahlias —Twelve named varieties, E. Sheppard,	5 00
Second, John Parker,	4 00
Third, Hovey & Co.,	3 00

Six named varieties, James Nugent,	$3 00
Second, E. Sheppard,	2 00
Third, Miss C. Smith,	1 00
Vase of Flowers.—Mrs. E. M. Gill,	4 00
Second, Mrs. A. D. Wood,	3 00

CHRYSANTHEMUM SHOW.

November 9.

Chrysanthemums.—Six Large Flowered, or Chinese, H. L. Higginson,	8 00
Second, H. P. Walcott,	6 00
Six Japanese varieties, H. P. Walcott,	8 00
Second, H. L. Higginson,	6 00
Four Pompon varieties, H. L. Higginson,	4 00
Second, H. P. Walcott,	3 00
Six Large Flowered, or Chinese, in six-inch pots, H. L. Higginson,	5 00
Second, Patrick Malley,	3 00
Specimen Plant, Large Flowered, or Chinese, H. L. Higginson,	4 00
Second, H. P. Walcott,	3 00
Specimen Plant, Japanese, H. L. Higginson,	4 00
Second, H. P. Walcott,	3 00
Specimen Plant, Anemone Flowered, H. L. Higginson,	3 00
Second, H. P. Walcott,	2 00
Specimen Plant, Pompon, H. L. Higginson,	3 00
Second, H. P. Walcott,	2 00
Twelve Cut Blooms, Large Flowered, or Chinese, H. P. Walcott,	4 00
Second, E. W. Wood,	3 00
Six Cut Blooms, Large Flowered, or Chinese, Benjamin G. Smith,	3 00
Second, H. P. Walcott,	2 00
Twelve Sprays of Pompons, H. P. Walcott,	2 00
Second, E. W. Wood,	1 00
Six Sprays of Japanese, H. P. Walcott,	3 00
Second, E. W. Wood,	2 00
Display of named varieties of any or all classes, 30 bottles, H. P. Walcott,	4 00
Second, E. W. Wood,	3 00
Orchids.—Three varieties, in bloom, F. L. Ames,	8 00
Second, F. L. Ames,	6 00
Single plant, in bloom, F. L. Ames,	4 00
Second, John L. Gardner,	3 00
Hand Bouquets.—Pair, James Nugent,	2 00
Second, Mrs. E. M. Gill,	1 00

Gratuities:

Norton Brothers,	Chrysanthemum	Plants,	$6 00
H. L. Higginson,	"	"	5 00
E. Sheppard,	"	Flowers,	1 00
Mrs. E. M. Gill,	"	"	1 00
Francis B. Hayes,	Display of	Flowers,	5 00
F. L. Ames,	Plants,		5 00

NOVEMBER 26.

Gratuity:

H. L. Higginson, *Eucharis Amazonica*, ... 3 00

DECEMBER 17.

Gratuity:

Francis B. Hayes, Display of Flowers, ... 2 00

SILVER MEDALS.

January 15. Francis B. Hayes, Collection of Epacris.

February 5. John L. Gardner, Collection of Primulas.

" " James Cartwright, *Sophronitis grandiflora.*

March 5. James Cartwright, *Dendrobium Wardianum.*

Azalea and Rose Show, March 17. F. L. Ames, Orchids.

May 7. Francis B. Hayes, Collection of Ericas.

Rhododendron Show, June 4. Woolson & Co., Collection of Herbaceous Plants.

" " E. L. Beard, *Odontoglossum Roezlii.*

Rose Show, June 28. V. H. Hallock, Son, & Thorpe, Seedling Double Pelargoniums.

July 9. Francis Parkman, *Iris Kæmpferi* in variety.

July 23. John C. Hovey, Seedling Japanese Hollyhocks.

August 13. Jackson Dawson, New Shrubs.

August 20. E. Haskell, Nymphæas in variety.

Annual Exhibition, September 13–16. William H. Spooner, Collection of Nasturtiums and Tropæolums.

" " David Allan, gardener to Miss Pratt, *Lastrea Richardsii multifida.*

" " F. L. Harris, Seedling Dracænas.

" " Jacob W. Manning, Collection of Evergreens.

Chrysanthemum Show, November 9. F. L. Ames, *Anthurium Andreanum.*

" " Miss E. H. Craft, Design of Autumn Flowers.

December 3. John L. Gardner, *Odontoglossum grande.*

BRONZE MEDALS.

June 18. Francis B. Hayes, New Rhododendrons.

Annual Exhibition, September 13–16. W. C. Strong & Co., Collection of Hardy Trees and Shrubs.

" " Samuel Smith, Collection of Single Dahlias.

FIRST CLASS CERTIFICATES OF MERIT.

February 5. Francis B. Hayes, New Rose, George Bancroft.
February 12. " " " Clematis in Pots.
March 5. Marshall P. Wilder, Seedling Azalea, Marshall Pinckney Wilder.
" " Jackson Dawson, *Andromeda Japonica.*
Azalea and Rose Show, March 17. Hovey & Co., Seedling Azaleas.
March 28. John B. Moore & Co., New Roses.
" " Hovey & Co., Chrysanthemums.
April 2. Jackson Dawson, *Rosa multiflora.*
April 30. E. L. Beard, Pansy Odier.
June 28. Francis B. Hayes, Rhododendrons and Roses.
Rose Show, June 28. V. H. Hallock, Son, & Thorpe, *Iris Kæmpferi* in variety.
" " " " F L. Ames, *Cypripedium superciliare.*
" " " " Eben Bacon, Tuberous-rooted Begonias.
" " " " J. Warren Merrill, New Ferns.
July 9. Edwin Fewkes, *Chrysanthemum carinatum.*
" " H. P. Walcott, Seedling Delphiniums.
" " Francis B. Hayes, *Lilium Takesima.*
July 23. " " " Tuberous-rooted Begonias.
" " " " " *Lilium longiflorum var.*
" " " " " Seedling Gloxinias.
August 6. John B. Moore & Co., Seedling Phlox, No. 12.
August 13. A. H. Fewkes, Seedling Hybrid Begonias.
" " E. Sheppard, Seedling Delphiniums.
August 20. J. W. Manning, Trees and Shrubs.
" " E. Sheppard, Seedling Gloxinias.
August 27. Hovey & Co., Fifty species and varieties of Trees and Shrubs.
" " W. C. Strong & Co., Foliage of Hardy Plants.
" " Francis B. Hayes, Rhododendron Princess Hélène.
" " George Craft, *Papaver umbrosum.*
September 3. O. W. Holmes, *Nelumbium luteum.*
Annual Exhibition, September 13–16. Henry Ross, *Alternanthera latifolia aurea.*
" " Hovey & Co., New Single Dahlias.
" " M. H. Simpson, Seedling Coleus.
October 1. Francis B. Hayes, *Stenocarpus Cunninghami.*
Chrysanthemum Show, November 9. F. L. Ames, *Ipomæa Horsfalliæ.*
" " H. P. Walcott, Seedling Chrysanthemums.

PROSPECTIVE PRIZE.

James F. C. Hyde, Hyde's White Gladiolus.

REPORT

OF THE

Committee on Fruits,

FOR THE YEAR 1881.

By E. W. WOOD, Chairman.

In reviewing the fruit exhibits of the past year, we can hardly claim that the result has realized the expectations which the opening season promised. Suffering from extreme cold during the winter of 1880–81 less than almost any other portion of our country, with the ground covered with snow continuously from November till March, a condition most favorable to the roots of fruit bearing plants, we found in the opening spring there had been little injury in the fruit gardens. The only cases reported were among peach trees in exceptionally unfavorable locations.

The season was later than usual, and the first unfavorable reports of the fruit crop came from various parts of the State, that the rust was more or less severely affecting the strawberries, some varieties suffering much more severely than others planted side by side under the same conditions.

Strawberries. — The Strawberry Exhibition, so far as quantity and appearance were concerned, was fully up to the standard of previous exhibitions, but in quality it was decidedly inferior; owing to the cool and cloudy weather while the fruit was maturing, it was wanting in that peculiar flavor which is the charm of this delicious fruit.

Several new varieties were shown, but none of marked prominence either for size or beauty, and the Committee hardly feel warranted in expressing an opinion as to quality until tried under more favorable conditions. The Sharpless, a comparatively new

berry, was shown in larger quantity than any other variety. Owing to its peculiar and unattractive form, and the objection made to some extent that it does not ripen evenly, it may be too early to express a decided opinion as to its desirability for general cultivation, but the fact that it will doubtless be more generally cultivated in this vicinity in the immediate future than any other of the new varieties, will soon secure for it its true relative position.

Cherries. — Owing to wet weather at the time of ripening, this fruit was shown in limited quantity and was confined to varieties previously exhibited.

Currants. — This fruit has been abundant and of good size and quality; the exhibits have been fully up to previous years in quantity and quality, but confined more exclusively to the two varieties, La Versaillaise and Dana's White Transparent; these are now very generally grown and may be considered the best representatives of the red and the white currant.

Raspberries. — The exhibits of this fruit were not up to the average of previous years, either in quality or quantity. The Franconia was the leading variety shown. This fruit deserves more attention from our small fruit growers; it is of easy culture and meets with a ready sale at good prices, there being little or no competition from distant growers, as it does not bear transportation long distances.

Blackberries. — This fruit was unusually late the past season, none being shown at either of the exhibitions when prizes were offered, though some very good specimens were subsequently shown. Many who formerly grew this fruit to a greater or less extent have given it up on account of the uncertainty of a crop, from the canes being killed during the winter. This fact suggests the inquiry whether we cannot, by crossing the Wachusett, or some other hardy variety, with the Dorchester or Kittatinny, secure the hardiness of the former combined with the size and flavor of the latter. Such a result would be a valuable acquisition to our small fruits.

Gooseberries were shown in about the usual quantity; the prizes for natives were awarded to Smith's Seedling and Downing's Seedling. Of foreign varieties, B. G. Smith showed some fine specimens.

Plums. — The continued increase in the number of varieties and quantity of this fruit, shows that more attention is being given to

its cultivation, and with good results. Many have been deterred from growing the plum on account of the frequent loss of the trees by the black wart, and the more frequent loss of the fruit by the curculio; but, as the means of combatting these enemies are becoming better known and more generally practised, we may reasonably expect an increase in this desirable fruit.

Peaches. — The Garden Committee, the past season, offered prizes for the best Peach Orchards, and as a result received invitations from growers in widely different localities, and will give you in their report the results of their examinations. The Fruit Committee can only supplement their report by saying that, while but few of the larger growers have been exhibitors, the quantity shown has been considerably in excess of that in previous years. One objection made by growers to going more extensively into peach culture, is the difficulty in getting healthy young trees. It is the exception rather than the rule to find a nursery of young trees one year old from the bud, where more or less are not affected with the yellows. This would suggest a more careful selection of seed and a more careful selection of buds with which to inoculate the stocks.

Grapes. — The past season has been the most unfavorable for this fruit known for many years. At the Annual Exhibition there were but three dishes of grapes shown in competition for the sixteen prizes offered. They were so severely injured by mildew that in many places the more hardy kinds — among them the Concord — dropped from the vines before maturing. Of the three varieties shown at the Annual Exhibition, but two were considered deserving a first prize; these were Moore's Early and the Cottage. At the exhibition on the 1st of October, first prizes were taken by the Concord, Delaware, Isabella, Moore's Early, and Francis B. Hayes. At this exhibition C. E. Grant showed a superior dish of the Catawba.

Foreign grapes were shown in about the usual quantity; there were some larger bunches than have been recently exhibited, but size had been secured at the expense of color. H. L. Higginson showed some finely colored fruit, and there were also well ripened bunches from John L. Gardner. A. W. Nickerson showed the largest clusters, and had they been well colored they would have been superior to any exhibited for several years.

Pears. — We have had more than an average crop of this fruit the past season, and the exhibits, taken as a whole, have been

above the average; but the Annual Exhibition being held at an earlier date than for several years, and the season being later than usual, the show of the later and larger varieties was far below the average. The October and November exhibitions were among the best we have ever had.

Apples.—This being the off year for this fruit, it was not expected the exhibits would compare favorably with those of last year, which was one of great abundance; but it is gratifying to be able to report the amount shown as considerably in excess of that exhibited in previous odd years. The great difference in the quantity of this fruit, with such unfailing regularity, upon the odd and even years, would suggest the inquiry whether by removing the blossoms from young trees on the even year, and selecting scions and buds from trees whose habit is to produce their fruit on the odd year, a greater equality cannot be secured.

Oranges, etc.—On the 9th of April we had a display of fruits, mostly of the genus Citrus, sent by the Southern California Horticultural Society, at the suggestion of Lucius G. Pratt, one of our members, when on a visit to California. They included oranges of several varieties, lemons, limes, shaddocks, and raisins, the last made from Muscat of Alexandria grapes, grown without irrigation, and of extra fine quality. The oranges, etc., though not as fresh as if they had not been exhibited in California, were of good appearance and fair quality, and the whole exhibit was of much interest. We have had no such display since April 11, 1840, when Charles W. Dabney, United States Consul at Fayal, an Honorary Member of the Society, sent from his own garden, where only in the islands some of them could be found, twelve varieties of citrons, oranges, lemons, and limes. A First Class Certificate of Merit was awarded by the Committee to Warren Kimball, of National City, Cal., for a Collection of Oranges, Prunes, and Raisins, and the same to R. G. Clark, of San Diego, for Raisins.

At the Annual Exhibition, D. S. Marvin, of Watertown, N. Y., entered his seedling grape, the Centennial, for the Prospective Prize for grapes. Of those previously entered for this prize, the Hayes was the only one to which the attention of the Committee was called.

Of the $950 placed at the disposal of the Committee for prizes and gratuities, they have awarded $749, leaving an unexpended balance of $201. The Committee felt bound to keep within their appropriation, and in offering their prizes adopted substantially

the list of former years under the same appropriation, and the reason for this unusually large unexpended balance is found in the comparatively small number of prizes awarded for grapes and apples.

Owing to the lateness of the season, the Committee voted, in conjunction with the Vegetable Committee, to postpone the award of all prizes one week, beginning with the exhibition of July 23, and including the last show before the Annual Exhibition. This step resulted in a decided improvement in the exhibitions.

The Secretary of the Society has kindly given the Committee the benefit of his experience by furnishing descriptions of new fruits, which will be annexed to this report.

Our fruit growers were sadly disappointed that, at the Annual Exhibition, our Grapes, Apples, and Pears, to a considerable extent, were shown under so unfavorable conditions; especially as that exhibition was held in connection with that of the American Pomological Society, whose exhibits embraced the fruits from widely different sections of our country, including those from California, in great variety. It would have been gratifying to our own exhibitors could they have shown to the large number of visitors from the different States what our fruit gardens and orchards produce in a favorable season.

The fact that more than usual disappointment has attended the efforts of fruit growers in this vicinity the past season should not discourage those engaged in fruit culture. These unfavorable climatic influences are exceptional and less liable to occur than disappointment in almost any other pursuit. Remembering that our fruits already form an important article in domestic economy and furnish a luxury for our tables through the entire year, we may reasonably expect that with enlarged and more systematic methods of cultivation, improved means for shipping our fruits to foreign markets, a home market constantly increasing, and a location the most favorable for export trade, fruit growing will become one of the important industries of the State.

Respectfully submitted,

E. W. Wood,
Benj. G. Smith,
Warren Fenno,
C. F. Curtis,
P. B. Hovey,
Jacob W. Manning,

Fruit Committee.

NOTES ON NEW FRUITS.

By Robert Manning, Secretary.

Apple. *Highland Beauty.*—A seedling from the Lady apple, raised by E. P. Roe, of Cornwall-on-the-Hudson, N. Y., and exhibited by Hon. Marshall P. Wilder, February 5. Small, flattened, somewhat irregular and angular, but hardly ribbed; one side higher than the other. Skin clear, smooth yellow, thinly dotted with irregular russet specks; toward the sun brilliant carmine, dotted with obscure fawn-colored dots, the yellow ground showing distinct and well defined where overlaid by a leaf. Skin, thin; flesh, white, tender, not very juicy, very mild sub-acid; quality, "good," but probably the specimens were a little too ripe to show its best. In size it surpasses its parent, but not in quality.

Pears. *Earle's Bergamot.*—A seedling raised by the late Hon. John Milton Earle, of Worcester, Mass.; exhibited by Edward W. Lincoln, at the Annual Exhibition, September 13–16. Medium size, globular obtuse pyriform. Skin, thick; color, dull green,—sometimes yellow,—with a dull brownish red cheek, and patches of bronzy russet in the sun; in the shade, thinly sprinkled with russet dots of varying size. Flesh, greenish white, very melting and juicy, with a rich and pleasant flavor. "Very good."

Clapp's Seedling, No. 107.—From Hon. Marshall P. Wilder, October 22. Large, oblong pyriform, somewhat irregular and variable. Color, pale yellow; general appearance not unlike that of the Bartlett. Flesh, very fine grained and juicy, acidulous, not high flavored. It has a fragrance resembling that of the Lawrence.

Grape. *Duchess.*—Grown by A. J. Caywood, Poughkeepsie, N. Y.; presented by Hon. Marshall P. Wilder. The bunches shown were small, and pretty compact; berry of small or medium size, round; color, pale green, in specimens exposed to the sun inclining to amber, with a decided bloom. Texture "meaty" or sometimes with a little pulp, juicy, and sweet throughout the pulp, in the last point showing a decided step in advance. The skin is thick, and it would probably keep and carry well.

PRIZES AND GRATUITIES AWARDED FOR FRUITS.

February 12.

Gratuity : —

Warren Fenno, Josephine de Malines Pears, ... $1 00

March 17.

Winter Pears.—Any variety, Warren Fenno, Josephine de Malines, 3 00
Second, Warren Fenno, Duchesse de Bordeaux, . . . 2 00
Winter Apples.—Any variety, W. T. Hall, Northern Spy, . . 3 00
Second, Warren Fenno, Northern Spy, ... 2 00

Gratuities : —

A. D. Capen, Collection of Pears, ... 1 00
S. Hartwell, " " Apples, ... 1 00
George Craft, " " " 1 00
B. G. Smith, " " " 1 00
C. E. Grant, " " " and Pears, ... 1 00
R. Manning, " " " " " 1 00

June 11.

Gratuity : —

John C. Gray, Apricots, ... 3 00

June 18.

Gratuity : —

Aaron D. Capen, Strawberries, ... 1 00

June 25.

Gratuity : —

Charles Garfield, Hervey Davis Strawberries, ... 1 00

ROSE AND STRAWBERRY SHOW.

June 28.

Strawberries. — Four quarts of any variety, J. F. C. Hyde, Sharpless, Silver Cup, value, ... $25 00
Four quarts Charles Downing, William Doran & Son, . . . 3 00
Second, Aaron D. Capen, ... 2 00
Cumberland Triumph, J. B. Moore & Co., ... 3 00
Hervey Davis, J. B. Moore & Co., ... 3 00

President Lincoln, J. B. Moore & Co.,	$3 00
Sharpless, Warren Heustis,	3 00
Second, J. F. C. Hyde,	2 00
Triomphe de Gand, the second prize to Charles Garfield,	2 00
Two quarts Brighton Pine, Warren Fenno,	2 00
Caroline, C. E. Grant,	2 00
Charles Downing, Warren Heustis,	2 00
Second, Stanley Seaverns,	1 00
Cumberland Triumph, J. B. Moore & Co ,	2 00
Second, Horace Eaton,	1 00
Cutter's Seedling, E. W. Wood,	2 00
Duchess, Joseph D. Fitts, Providence, R. I.,	2 00
Hervey Davis, the second prize to Charles Garfield,	1 00
Jucunda, C. E. Grant,	2 00
Miner's Great Prolific, J. B. Moore & Co.,	2 00
Second, Aaron D. Capen,	1 00
Pioneer, Marshall P. Wilder,	2 00
President Wilder, Marshall P. Wilder,	2 00
Sharpless, L. W. Weston,	2 00
Second, J. F. C. Hyde,	1 00
Any other variety, Joseph D. Fitts, Champion,	2 00
Collection, not less than six varieties, one quart each, Hovey & Co.,	4 00
Two new named varieties, not previously exhibited, G. H. & J. H. Hale, South Glastonbury, Conn.,	3 00
Second, Hovey & Co.,	2 00
Fifty berries, any variety, Warren Heustis, Sharpless,	2 00
CHERRIES. — Two quarts of any variety, Isaac P. Langworthy,	2 00
Second, C. E. Grant,	1 00

Gratuities: —

J. B. Moore & Co., Collection of Strawberries,	2 00
C. E. Grant, " " "	2 00

JULY 2.

CHERRIES. — Two quarts Black Eagle, C. E. Grant,	2 00
Black Tartarian, C. E. Grant,	2 00
Coe's Transparent, Thomas S. Lockwood,	2 00
Any other variety, C. E. Grant, Black Heart,	2 00
Second, C. E. Grant, Elton,	1 00
STRAWBERRIES. — Two quarts, any late variety, Warren Heustis,	2 00
Second, Horace Eaton,	1 00

Gratuities: —

M. W. Chadbourne, Collection of Strawberries,	2 00
C. E. Grant, " " "	1 00
Warren Fenno, " " "	1 00
B. G. Smith, " " " and Cherries,	1 00

A. D. Capen, Collection of Cherries, ... $1 00
John C. Gray, Peach tree in fruit, ... 3 00

JULY 9.

CURRANTS.—Four quarts, B. G. Smith, Dana's Transparent, . . 2 00

Gratuities: —

Charles Garfield, Triomphe de Gand Strawberries, ... 1 00
Thomas S. Lockwood, Collection of Cherries, ... 2 00
Horace Partridge, " " " 1 00

JULY 16.

RASPBERRIES. — Two quarts, any variety, B. G. Smith, Franconia, 2 00
Second, William Doran & Son, ... 1 00
CURRANTS. — Two quarts Dana's Transparent, Mrs. E. M. Gill, . 2 00
Second, M. W. Chadbourne, ... 1 00
La Versaillaise, B. G. Smith, ... 2 00
Second, William Doran & Son, ... 1 00
Victoria, B. G. Smith, ... 2 00
Black Naples, B. G. Smith, ... 2 00
CHERRIES. — Any variety, Charles F. Curtis, Hyde's Seedling, . 2 00
Second, C. E. Grant, Downer's Late, ... 1 00

Gratuities:—

Warren Fenno, Collection of Cherries, Currants, and Raspberries, 1 00
M. W. Chadbourne, Currants, ... 1 00

JULY 23.

Gratuities: —

Horace Partridge, Cherries and Pears, ... 1 00
C. N. Brackett, Seedling Cherries, ... 1 00
N. B. White, Currants, ... 1 00
C. E. Grant, " 1 00
M. W. Chadbourne, Currants, ... 1 00
Charles Garfield, " 2 00
William Doran & Son, " and Raspberries, ... 2 00
Aaron D Capen, Raspberries 1 00
Warren Fenno, " 1 00
J. B. Moore & Co., Gooseberries, ... 1 00
Mrs. E. M. Gill, " and Currants, ... 2 00
Alexander Dickinson, Doyenne d'Été Pears, ... 1 00
Marshall P. Wilder, Amiré Joannet Pears, ... 1 00
B. G. Smith, June Berries, ... 1 00

JULY 30.

GOOSEBERRIES. — Two quarts Native, B. G. Smith, Smith's Seedling, 2 00
Second, Warren Fenno, Downing's Seedling, ... 1 00
PEARS. — Doyenne d'Été, Warren Heustis, ... 2 00
Second, B. G. Smith, ... 1 00

Gratuities: —

Charles Garfield, Raspberries, Gooseberries, and Currants,	$1 00
George Craft, Gooseberries,	1 00
William E. Coffin, Peaches,	1 00
F. J. Dutcher, Apricots,	1 00
Francis B. Hayes, Black Hamburg Grapes,	2 00
R. P. Walsh, Figs,	1 00
Edwin Fewkes, Pineapple,	2 00

AUGUST 6.

PEARS. — Any variety, Alexander Dickinson, Beurre Giffard,	2 00
Second, Warren Fenno, " "	1 00
GOOSEBERRIES. — Two quarts Foreign, B. G. Smith, Whitesmith,	2 00
Second, B. G. Smith, Bang-Up,	1 00

Gratuities: —

Charles Garfield, Currants, Raspberries, and Gooseberries,	1 00
Warren Fenno, Gooseberries,	1 00
Horace Eaton, " and Peaches,	1 00
A. S. McIntosh, Dorchester Blackberries,	1 00
James Nugent, " "	1 00
Miss Sarah M. Vose, " "	1 00
T. Putnam Symonds, Alexander Peaches,	1 00
C. E. Grant, Peaches,	1 00
Francis B. Hayes, Black Hamburg Grapes,	2 00

AUGUST 13.

PEARS. — Beurre Giffard, Mrs. Mary Langmaid,	2 00
Second, W. S. Janvrin,	1 00
APPLES. — Early Harvest, Horace Eaton,	2 00
Second, Warren Fenno,	1 00
Red Astrachan, Horace Eaton,	2 00
Second, J. T. Foster,	1 00
Large Yellow Bough, Warren Heustis,	2 00
Second, Warren Fenno,	1 00
Williams, Warren Heustis,	2 00
Second, B. G. Smith,	1 00

Gratuities: —

Charles Garfield, Blackberries,	1 00
James Nugent, "	1 00
A. S. McIntosh, "	1 00
A. M. Davenport, Alexander Peaches,	1 00
C. E. Grant, Hale's Early and Amsden Peaches,	1 00
Samuel Hartwell, Early Beatrice Peaches,	1 00

August 20.

Pears. — Clapp's Favorite, John C. Park,	$2 00
Second, W. S. Janvrin,	1 00
Any other variety, C. N. Brackett, Brandywine,	2 00
Second, Hovey & Co., Suprême de Quimper,	1 00
Figs. — Any variety, R. P. Walsh,	2 00

Gratuities: —

J. B. Johnson, Blackberries,	1 00
Warren Fenno, Pears,	1 00
Hovey & Co., "	1 00
Mrs. Mary Langmaid, Pears,	1 00
M. W. Chadbourne, " and Apples,	1 00
J. T. Foster, Apples,	1 00
C. C. Shaw, "	1 00
Caleb Bates, Hale's Early Peaches,	1 00

August 27.

Pears. — Bartlett, Mrs. Mary Langmaid,	2 00
Second, Alexander Dickinson,	1 00
Manning's Elizabeth, Charles Bird,	2 00
Second, Alexander Dickinson,	1 00
Rostiezer, John C. Park,	2 00
Second, Horace Eaton,	1 00
Tyson, John C. Park,	2 00
Second, A. S. McIntosh,	1 00
Plums. — Any variety, Richard Walsh, Washington,	2 00
Second, D. Tucker, Bradshaw,	1 00
Peaches. — Any variety, Richard Walsh, Dr. Hogg,	2 00
Second, A. M. Davenport, Early Rivers,	1 00

Gratuities: —

Warren Fenno, Apples, Peaches, and Apricots,	1 00
B. G. Smith, Pears and Apples,	1 00

September 3.

Apples. — Any variety, B. G. Smith, Williams,	2 00
Second, Warren Fenno, Gravenstein,	1 00
Pears. — Bartlett, Alexander Dickinson,	2 00
Second, Mrs. Mary Langmaid,	1 00
Any other variety, Warren Fenno, Brandywine,	2 00
Second, Hovey & Co., Doyenne Boussock,	1 00
Plums. — Collection, not less than four varieties, Mrs. H. V. Draper,	3 00
Second, Horace Eaton,	2 00
Any one variety, Mrs. H. V. Draper, Washington,	2 00
Second, H. M. Wiswall, Bradshaw,	1 00

Gratuities: —

A. S. McIntosh, Collection of Pears,	$1 00
A. M. Davenport, Hale's Early Peaches,	1 00
M. W. Chadbourne, Peaches and Pears,	1 00

SEPTEMBER 10.

APPLES. — Foundling, the second prize to Warren Fenno,	1 00
Gravenstein, the second prize to Warren Fenno,	1 00
Any other variety, the second prize to Warren Fenno, for Maiden's Blush,	1 00
PEARS. — Andrews, Mrs. Mary Langmaid,	2 00
Second, T. M. Davis,	1 00
Doyenne Boussock, Charles Bird,	2 00
Second, Warren Fenno,	1 00
Any other variety, M. W. Chadbourne, Souvenir du Congrès,	2 00
Second, Warren Fenno,	1 00
PEACHES. — Any variety, A. S. McIntosh, Crawford's Early,	2 00
Second, J. B. Moore & Co.,	1 00

Gratuities: —

F. J. Dutcher, Collection of Plums,	1 00
Horace Partridge, Bradshaw Plums,	1 00

ANNUAL EXHIBITION.

SEPTEMBER 13, 14, 15, AND 16.

Special Prizes.

Twelve Bartlett Pears, Mrs. Mary Langmaid,	5 00
Twelve Gravenstein Apples, C. C. Shaw,	5 00
Twelve Peaches, of any variety, F. Bayer, Crawford's Early,	5 00
Twelve Bunches of Native Grapes, J. B. Moore & Co., Moore's Early,	5 00

Regular Prizes.

APPLES. — Baldwin, J. T. Foster,	2 00
Second, C. C. Shaw,	1 00
Danvers Winter Sweet, C. C. Shaw,	2 00
Second, J. T. Foster,	1 00
Dutch Codlin, B. F. Hunt, Jr.,	2 00
Second, B. G. Smith,	1 00
Foundling, Warren Fenno,	2 00
Garden Royal, C. C. Shaw,	2 00
Golden Russet, " "	2 00
Second, Warren Fenno,	1 00
Gravenstein, William T. Hall,	2 00
Second, C. C. Shaw,	1 00

Hubbardston Nonsuch, M. W. Chadbourne,	$2 00
Second, J. T. Foster,	1 00
King of Tompkins County, Hovey & Co.,	2 00
Second, C. C. Shaw,	1 00
Lady's Sweet, the second prize to Warren Fenno,	1 00
Leicester Sweet, O. B. Hadwen,	2 00
Lyscom, O. B. Hadwen,	2 00
Maiden's Blush, Warren Fenno,	2 00
Second, C. C. Shaw,	1 00
Mother, John Cummings,	2 00
Northern Spy, C. C. Shaw,	2 00
Second, Warren Fenno,	1 00
Porter, A. S. McIntosh,	2 00
Second, M. W. Chadbourne,	1 00
Rhode Island Greening, A. S. McIntosh,	2 00
Second, John L. D'Wolf,	1 00
Roxbury Russet, John L. D'Wolf,	2 00
Second, C. C. Shaw,	1 00
Talman's Sweet, J. T. Foster,	2 00
Second, Josiah Crosby,	1 00
Washington Strawberry, John C. Park,	2 00
Second, Warren Fenno,	1 00
Crab Apples. — Hyslop, M. W. Chadbourne,	2 00
Second, B. F. Hunt, Jr.,	1 00
Transcendent, B. F. Hunt, Jr.,	2 00
Second, Warren Fenno,	1 00
Any other variety, Warren Fenno, Dartmouth,	2 00
Pears. — Bartlett, Alexander Dickinson,	2 00
Second, John L. Bird,	1 00
Belle Lucrative, John C. Park,	2 00
Second, Horace Partridge,	1 00
Beurre d'Anjou, Mrs. Mary Langmaid,	2 00
Second, William T. Hall,	1 00
Beurre Bosc, John L. Bird,	2 00
Second, Horace Partridge,	1 00
Beurre Clairgeau, William T. Hall,	2 00
Second, Charles Bird,	1 00
Beurre Hardy, Warren Fenno,	2 00
Second, Marshall P. Wilder,	1 00
Beurre Superfin, John C. Park,	2 00
Second, Warren Fenno,	1 00
Dana's Hovey, Hovey & Co.,	2 00
Second, B. G. Smith,	1 00
Doyenne Boussock, E. W. Wood,	2 00
Second, John Cummings,	1 00
Doyenne du Comice, Warren Fenno,	2 00
Second, William A. Crafts,	1 00

Duchesse d'Angouleme, Mrs. Mary Langmaid,	$2 00
Second, Warren Fenno,	1 00
Goodale, C. E. Grant,	2 00
Second, Warren Fenno,	1 00
Howell, John Cummings,	2 00
Second, John C. Park,	1 00
Lawrence, Horace Partridge,	2 00
Second, William T. Hall,	1 00
Louise Bonne of Jersey, John McClure,	2 00
Second, Mrs. Mary Langmaid,	1 00
Marie Louise, John L. D'Wolf,	2 00
Second, S. G. Damon,	1 00
Merriam, A. S. McIntosh,	2 00
Second, William A. Crafts,	1 00
Onondaga or Swan's Orange, Horace Eaton,	2 00
Second, Warren Fenno,	1 00
Paradis d'Automne, Marshall P. Wilder,	2 00
Second, John L. Bird,	1 00
Seckel, C. E. Grant,	2 00
Second, Alexander Dickinson,	1 00
Sheldon, Mrs. Mary T. Goddard,	2 00
Second, Mrs. Mary Langmaid,	1 00
Souvenir du Congrès, Horace Eaton,	2 00
Second, Warren Fenno,	1 00
St. Michael Archangel, W. C. Eustis,	2 00
Second, Marshall P. Wilder,	1 00
Urbaniste, Horace Partridge,	2 00
Second, E. W. Wood,	1 00
Vicar of Winkfield, the second prize to W. C. Eustis,	1 00
Winter Nelis, John L. Bird,	2 00
Second, John C. Park,	1 00
Any other variety, Marshall P. Wilder, Clapp's Favorite,	2 00
Second, Moses Darling, Jr., Kingsessing,	1 00
PEACHES. — Four varieties, the third prize to Alexander Dickinson,	4 00
Fourth, Samuel Hartwell,	3 00
Any one variety, A. S. McIntosh,	3 00
Second, J. B. Moore & Co.,	2 00
Third, Samuel Hartwell,	1 00
Orchard House Culture, Richard Walsh,	4 00
Second, Richard Walsh,	3 00
NECTARINES. — Any variety, Warren Fenno,	2 00
PLUMS. — Any variety, Mrs. H. V. Draper,	2 00
Second, B. G. Smith,	1 00
NATIVE GRAPES. — Delaware, the second prize to J. B. Moore & Co.,	1 00
Moore's Early, J. B. Moore & Co.,	2 00
Any other variety, J. W. Talbot, Cottage,	2 00

FOREIGN GRAPES. — Four varieties, two bunches each, H. L. Higginson, ... $8 00
Two varieties, two bunches each, A. W. Nickerson, . . . 4 00
Two bunches of any Black Grape, H. L. Higginson, . . . 4 00
Second, A. W. Nickerson, ... 3 00
Third, J. L. Gardner, ... 2 00
Two bunches of any White Grape, J. L. Gardner, . . . 4 00
Second, H. L. Higginson, ... 3 00

Gratuities: —

C. C. Shaw, Collection of Apples, ... 3 00
Stephen Salisbury, Dix Pears, ... 1 00
Marshall P. Wilder, Collection of New Pears, ... 2 00
C. N. Brackett, Collection of Pears, ... 3 00
M. W. Chadbourne, " " " 3 00
B. F. Hunt, Jr., " " " 2 00
Horace Partridge, " " " 2 00
Francis B. Hayes, " " " 2 00
C. E. Grant, " " " 2 00
John Ward, " " " 1 00
J. C. Lovell, Peaches, ... 1 00
R. P. Walsh, Plums, Nectarines, and Peaches, ... 3 00
J. C. Lovell, Worden Grapes, ... 1 00
Francis B. Hayes, Figs, ... 2 00

SEPTEMBER 24.

Gratuities: —

C. N. Brackett, Pears, ... 1 00
N. D. Harrington, Pears and Peaches, ... 1 00
C. E. Grant, Grapes, Pears, and Peaches, ... 3 00
Samuel Hartwell, Peaches, ... 1 00
J. B. Moore & Co , Peaches and Grapes, ... 3 00
Charles Garfield, " " " 1 00

OCTOBER 1.

PEARS. — Beurre Bosc, Horace Partridge, ... 2 00
Second, John L. Bird, ... 1 00
Beurre-Clairgeau, William T. Hall, ... 2 00
Second, Jesse Haley, ... 1 00
Beurre Diel, Alexander Dickinson, ... 2 00
Second, T. M. Davis, ... 1 00
Beurre Superfin, Warren Fenno, ... 2 00
Second, Mrs. H. P. Kendrick, ... 1 00
Doyenne du Comice, Warren Fenno, ... 2 00
Second, W. S. Janvrin, ... 1 00
Duchesse d'Angouleme, John McClure, ... 2 00
Second, Alexander Dickinson, ... 1 00
Frederick Clapp, Marshall P. Wilder, ... 2 00

Louise Bonne of Jersey, John McClure,	$2 00
Second, T. M. Davis,	1 00
Sheldon, Mrs. H. P. Kendrick,	2 00
Second, John McClure,	1 00
Urbaniste, Horace Partridge,	2 00
Second, A. S. McIntosh,	1 00
Any other variety, S. & C. Cummings, Seckel,	2 00
Second, Warren Fenno, Beurre Hardy,	1 00
Apples. — Gravenstein, William T. Hall,	2 00
Second, Warren Fenno,	1 00
Porter, M. W. Chadbourne,	2 00
Second, A. S. McIntosh,	1 00
Any other variety, Warren Fenno, Washington Strawberry,	2 00
Second, Moses Darling, Jr., Maiden's Blush,	1 00
Quinces. — Any variety, B. G. Smith,	2 00
Second, Horace Eaton,	1 00
Native Grapes. — Six bunches of Concord, William Doran & Son,	2 00
Second, Charles Garfield,	1 00
Delaware, S. G. Damon,	2 00
Second, Horace Eaton,	1 00
Diana, the second prize to S. G. Damon,	1 00
Isabella, J. W. Wellington,	2 00
Massasoit, the second prize to Joseph S. Chase,	1 00
Moore's Early, J. B. Moore & Co.,	2 00
Second, Charles Garfield,	1 00
Any other variety, J. B. Moore & Co., Francis B. Hayes,	2 00
Second, C. E. Grant, Catawba,	1 00
Foreign Grapes. — Two bunches, any variety, E. W. Wood, Black Hamburg,	3 00
Second, B. G. Smith, Muscat Hamburg,	2 00

Gratuities: —

C. E. Grant, Collection of Pears,	3 00
William T. Hall, " " "	2 00
C. N. Brackett, " " "	2 00
Horace Partridge, " " "	1 00
Warren Fenno, " " "	1 00
Jesse Haley, " " "	1 00
B. F. Hunt, Jr., " " " and Apples,	1 00
Aaron D. Capen, Pears,	1 00
S. G. Damon, "	1 00
B. G. Smith, "	1 00
M. W. Chadbourne "	1 00
Mrs. E. M. Gill, "	1 00
T. M. Davis, "	1 00
Charles Bird, "	1 00
E. G. Tutein, "	1 00

N. D. Harrington, Pears,	$1 00
A. S. McIntosh, " and Apples,	2 00
Marshall P. Wilder, Seedling Pears,	2 00
A. S. McIntosh, Peaches,	1 00
Samuel Hartwell, "	1 00
J. B. Moore & Co., "	1 00
Mrs. M. T. Goddard, "	1 00
M. Darling, Jr., "	1 00
A. M. Davenport, "	1 00
Warren Fenno, "	1 00
Charles Garfield, Seedling Peaches,	1 00

October 8.

Gratuities: —

O. B. Hadwen, Pears,	1 00
N. D. Harrington, Peaches and Pears,	1 00
R. P. Walsh, Peaches and Nectarines,	2 00
Charles H. Parker, Peaches,	1 00
W. W. Nichols, Seedling Peaches,	1 00
Samuel Hartwell, Peaches,	1 00

October 15.

Gratuities: —

J. Gardner, Pears,	1 00
A. S. McIntosh, "	2 00
C. E. Grant, Grapes, Pears, and Peaches,	2 00
M. Darling, Jr., Peaches,	1 00

October 22.

Gratuities: —

M. W. Chadbourne, Pears,	1 00
N. D. Harrington, Pears and Quinces,	1 00
C. E. Grant, Collection of Grapes,	1 00

October 29.

Gratuities: —

Mrs. H. V. Draper, Pears,	1 00
Walter Channing, "	1 00
Nathaniel Rudd, Peaches,	1 00

November 9.

Pears. — Beurre d'Anjou, Warren Fenno,	2 00
Second, William T. Hall,	1 00
Beurre d'Aremberg, Aaron D. Capen,	2 00
Second, Marshall P. Wilder,	1 00
Beurre Langelier, Jacob Eaton,	2 00
Second, T. M. Davis,	1 00

Dana's Hovey, Hovey & Co.,	$2 00
Second, A. S. McIntosh,	1 00
Doyenne du Comice, Warren Fenno,	2 00
Second, George S. Harwood,	1 00
Glout Morceau, A. S. McIntosh,	2 00
Second, Samuel McIntosh,	1 00
Josephine de Malines, Warren Fenno,	2 00
Second, John L. Bird,	1 00
Lawrence, W. S. Janvrin,	2 00
Second, Jesse Haley,	1 00
Vicar of Winkfield, W. P. Walker,	2 00
Second, A. S. McIntosh,	1 00
Winter Nelis, T. M. Davis,	2 00
Second, Jacob Eaton,	1 00
Any other variety, Warren Fenno,	2 00
Second, M. Darling, Jr.,	1 00

French Premiums.

APPLES. — Baldwin, J. T. Foster,	2 00
Second, M. W. Chadbourne,	1 00
Danvers Winter Sweet, J. T. Foster,	2 00
Second, C. C. Shaw,	1 00
Hubbardston Nonsuch, M. W. Chadbourne.	2 00
Second, C. C. Shaw,	1 00
King of Tompkins County, Hovey & Co.,	2 00
Second, C. C Shaw,	1 00
Lady's Sweet, Warren Fenno,	2 00
Northern Spy, C. C. Shaw,	2 00
Second, Warren Fenno,	1 00
Rhode Island Greening, the second prize to A. S. McIntosh,	1 00
Roxbury Russet, M. W. Chadbourne,	2 00
Second, Mrs. M. T. Goddard,	1 00
Talman's Sweet, J. T. Foster,	2 00
Second, M. Darling, Jr.,	1 00

Gratuities: —

C. E. Grant, Collection of Pears,	3 00
Marshall P. Wilder, " " "	3 00
A. S. McIntosh, Pears,	2 00
B. G. Smith, "	1 00
T. M. Davis, "	1 00
Lemuel Clapp, "	1 00
M. W. Chadbourne, "	1 00
George S. Harwood, "	1 00
Horace Partridge, " and Grapes,	2 00
Warren Fenno, " " Apples,	1 00
C. C. Shaw, Apples,	1 00
B. G. Smith, Lady Downes Grapes,	1 00

FIRST CLASS CERTIFICATES OF MERIT.

April 9. Warren Kimball, National City, Cal., Collection of Oranges, Prunes, and Raisins.

April 9. R. G. Clark, San Diego, Cal., Raisins.

Rose and Strawberry Show, June 28, E. S. Durand, Irvington, N. J., Jersey Queen Strawberries.

July 30. William C. Strong, Gregg (Black Cap) Raspberries.

August 20. H. H. Hunnewell, Stanwick Nectarines.

REPORT

OF THE

COMMITTEE ON VEGETABLES.

FOR THE YEAR 1881.

By CHARLES N. BRACKETT, Chairman.

The season of 1881 has proved one of a peculiar character, and will long be remembered by cultivators of the soil on account of its many changes and surprises.

The spring was remarkably cold, wet, and backward, and vegetation came forward with a slow, and somewhat uncertain pace. Many of the more tender varieties of vegetable and other seeds, owing to unpropitious weather at the time of planting, failed to germinate, and necessitated replanting, thereby causing delay, loss, and disappointment to the cultivator. In many localities the crops of squashes, melons, etc., were total failures. In other sections acres of growing crops were severely damaged, and in some instances totally ruined, by heavy showers accompanied by wind and hail, which also did more or less injury to the fruit crop.

The effects of weather, so unfavorable to vegetation, could scarcely fail to be noticed in our weekly exhibitions, which have during the past year, notwithstanding the persevering efforts of contributors, been inferior to those of the two previous seasons.

From the commencement of the year to the Azalea Exhibition, March 17, gratuities were awarded for vegetables grown under glass, to Josiah Crosby, Henry R. Comley, John B. Moore, Cephas H. Brackett, and W. H. Richardson, who were the only contributors of forced vegetables for a period of over three months. To those exhibitors who still persevere in their efforts to keep alive this interesting feature of our exhibitions during the winter and early spring months, the thanks of the Society are due, while from those who appear from some cause to have lost their interest, or have become discouraged, and have dropped away, we must hope for better things in the future.

The weekly shows were affected in a marked manner by the lateness of the season. Tomatoes, which are usually exhibited in

perfection during the month of July, when prizes are first offered, were this season not shown until the middle of August, and no really fine specimens were seen before August 13. Greenflesh melons were called for by the Schedule on the 6th of August, but none were shown until September 3. Sweet corn, beans, etc., were also nearly two weeks behind the usual time.

By the middle of July it was found that few if any of the prizes offered would be awarded unless the dates in the Schedule were changed so as to conform more nearly to the requirements of the season. Consequently the Fruit and Vegetable Committees, after consultation, voted to change the dates of the Schedule in their respective departments, making them one week later for the remainder of the season, commencing with July 23, and so on, up to the Annual Exhibition. Contributors were accordingly notified. This change as anticipated had the desired effect, and a decided improvement was noticeable thereafter in all the exhibitions.

The shows of Peas although somewhat later than usual have been fine. In addition to old and standard kinds, some of the most promising of more recent introduction were to be seen on exhibition. A new variety, the Marvel, shown by C. M. Atkinson, July 16, attracted much attention. Mr. Atkinson says of this variety, "it was sown on the 30th of April; it is a sturdy grower, an enormous cropper, of a beautiful color when boiled, and of most delicious flavor. I am impressed that it is the very best pea for mid-season supply." Very fine specimens of Omega were shown on the same date by James Cartwright. At the Rose Show the first and second prizes for peas were awarded to Samuel G. Stone, and Samuel Hartwell for Kentish Invicta.

May 7 and 14, James Bard, gardener to Harvey D. Parker, exhibited a new variety of Tomato, which originated with him, called the Parker House Favorite. The specimens were unusually choice and beautiful ones, and attracted particular notice on this account. Mr. Bard says it is the best variety of all for forcing, and a very heavy cropper. For the season of the year at which they were shown, they were decidedly the best specimens we have ever seen on exhibition.

At the Annual Exhibition some very fine specimens of Livingston's Perfection, were shown by George H. Rich, who took the first prize for the best three varieties; and a new variety, the Mayflower, from B. K. Bliss & Sons, took the first prize for any other variety than those named in the Schedule. The Mayflower

is a large, handsome, solid variety, somewhat after the style of the Paragon, but said to be earlier than that variety. The shows of tomatoes, at the weekly exhibitions and at the annual, were remarkably full and fine. The Acme has been the leading variety, while the Paragon, Emery, and other favorites have been well represented.

The improvement which the past few years have wrought in this popular vegetable has been both striking and gratifying, and by contrasting the hollow and wrinkled specimens which we used to see offered for prizes ten or twelve years ago, with the perfect and very beautiful specimens to be seen this season at our exhibitions, its extent will in some degree be appreciated.

These remarks apply equally well to other of our garden vegetables, especially to the potato, and the various root crops, where equal progress has been made.

The display at the Annual Exhibition surpassed expectation, it being thought the unpropitious season would tell severely upon the various crops, and, as a natural consequence, affect unfavorably the Annual Show. In a partial degree this was the result, but not to the extent anticipated.

Notwithstanding the unfavorable season the display of Potatoes at the Annual Exhibition was superior to that of the previous year, the varieties being more select, and the specimens better grown. The main crop however was seriously injured, during the month of August, by blight, which from all accounts appears to have been general throughout the country. The loss accruing from this cause, must in the aggregate, have been very great. Early planted varieties, however, escaped the blight, which would seem to be a sufficient argument in favor of early planting.

We are indebted to E. S. Brownell, of Essex Junction, Vermont, for a collection of new seedling potatoes, exhibited by him at the Annual Exhibition, under numbers running from 50 to 55 inclusive, three of which have been named by the originator, and will be introduced to the public the coming season. We append the following description of them, as furnished by Mr. Brownell:

Brownell's Early Telephone (No. 52), I consider one of the best potatoes that I have ever raised. The vines are light green, stocky, of medium height, somewhat bushy. The tubers are white, smooth, of good size, and grow compactly in the hill, with few small ones, and cook well. Quality excellent, and it is very productive.

Brownell's Best (No. 50). Stalks medium, color dark green;

tubers white, somewhat flattened; eyes nearly even with the surface. The tubers grow compactly in the hill, and are of good size. It is early and very productive. It cooks evenly through, is very white and floury, and in quality not excelled.

Brownell's Early Mayflower (No. 54) is a variety of superior quality and very productive. The vines are short, thick and stocky; foliage a bright green color. The tubers are oblong in shape, large size, white, and cook very dry and floury. It is a vigorous and healthy grower.

Medals were awarded Mr. Brownell for the above-named varieties, at the New York State Fair, the past season. He is certainly entitled to great credit for his efforts and endeavors to originate new and improved varieties of this valuable esculent. It is only after four or five years' cultivation that the true character of a new seedling can be well ascertained; and when it is well established in the mind of the cultivator, it requires nearly as many years more to convince the public of it, so that establishing the reputation of a potato is, after all, a work of many years. Mr Brownell has, we understand, many other seedlings, which, if they shall prove on further trial equal to expectations already entertained of them, will be properly named, and in due time introduced to the public. Your Committee awarded Mr. Brownell, for six varieties of new seedling potatoes, the Society's Silver Medal.

Having thus briefly alluded to some of the most noticeable features of our exhibitions during the past year, we close our report with the annexed list of awards.

The amount appropriated for prizes and gratuities was	$500 00
Income from the Whitcomb Fund, ...	30 00
	$530 00
Amount awarded in prizes and gratuities, . . .	476 00
Leaving an unexpended balance of	$54 00

All of which is respectfully submitted.

C. N. Brackett,
Josiah Crosby,
Walter Russell,
George W. Pierce,
Samuel Hartwell,
C. E. Grant,
M. W. Chadbourne,

Committee on Vegetables.

PRIZES AND GRATUITIES AWARDED FOR VEGETABLES.

January 29.

Gratuity : —

Josiah Crosby, Celery, ... $1 00

February 12.

Gratuities : —

Henry R. Comley, Radishes, ... 1 00
John B. Moore, Mushrooms, ... 1 00

February 19.

Gratuity : —

C. H. Brackett, Tomatoes and Rhubarb, ... 2 00

February 26.

Gratuity : —

W. H. Richardson, Pierson's Long Green Cucumber, . . . 1 00

AZALEA AND ROSE EXHIBITION.

March 17.

Radishes. — Four bunches Turnip Rooted, Josiah Crosby, . . $3 00
Cucumbers. — Pair of White Spine, C. H. Brackett, . . . 3 00
Lettuce. — Four heads of Tennisball, J. Crosby, ... 3 00
Second, H. R. Comley, ... 2 00

Gratuity : —

C. H. Brackett, Rhubarb and Tomatoes, ... 2 00

March 26.

Gratuity : —

Josiah Crosby, Lettuce and Radishes, ... 1 00

April 9.

Gratuities : —

Henry R. Comley, Lettuce, ... 1 00
E. W. Wood, " 1 00

April 16.

Gratuities : —

Henry R. Comley, Lettuce, ... 1 00
Josiah Crosby, " 1 00
George W. Pierce, " 1 00
Charles Garfield, " 1 00

May 7.

Gratuities: —

J. Crosby, Collection,	$2 00
Aaron D. Capen, Rhubarb,	1 00
Charles Garfield, Lettuce,	1 00

May 14.

Gratuities: —

M. W. Chadbourne, Asparagus,	1 00
J. Crosby, Radishes,	1 00
Marshall P. Wilder, Sion House Cucumber,	1 00
John B. Moore, Asparagus, (new hybrid),	1 00
Samuel Hartwell, Asparagus,	1 00
James Bard, Tomatoes, (new hybrid, very fine),	1 00

May 21.

Gratuity: —

James Bard, Parker House Favorite Tomatoes,	1 00

June 4.

Carrots. — Twelve Short Scarlet, J. Crosby,	2 00
Radishes. — Twelve Turnip Rooted, J. Crosby,	2 00
Asparagus. — Four bunches, J. B. Moore,	2 00
Second, L. W. Weston,	1 00
Cucumbers. — Pair, C. H. Brackett,	2 00
Second, Josiah Crosby,	1 00
Lettuce. — Four heads, Josiah Crosby, Tennisball,	2 00
Second, Josiah Crosby, Boston Curled,	1 00
Rhubarb. — Twelve stalks, John C. Hovey, Monarch,	2 00
Second, Samuel Hartwell, Victoria,	1 00

Gratuities:—

Cephas H. Brackett, Collection,	1 00
Charles Garfield, "	1 00
M. W. Chadbourne, Rhubarb,	1 00

June 11.

Gratuity:—

Josiah Crosby, Collection,	2 00

June 25.

Gratuities: —

Samuel Hartwell, Challenge Peas,	1 00
M. W. Chadbourne, Peas,	1 00

ROSE AND STRAWBERRY SHOW.

June 28.

Beets. — Turnip Rooted, Walter Russell,	$2 00
Second, J. Fillebrown,	1 00
Egyptian, J. Crosby,	2 00
Second, S. G. Stone,	1 00
Carrots. — Intermediate, J. Crosby,	2 00
Second, W. Russell,	1 00
Onions. — Twelve, J. Crosby,	2 00
Second, J. Fillebrown,	1 00
Cucumbers. — Pair of White Spine, J. Crosby,	2 00
Second, C. H. Brackett,	1 00
Cabbages. — Four, Walter Russell,	2 00
Second, Josiah Crosby,	1 00
Lettuce. — Four heads, George W. Pierce,	2 00
Second, Walter Russell,	1 00
Peas. — Peck, S. G. Stone, Kentish Invicta,	2 00
Second, Samuel Hartwell, " "	1 00

Gratuities:—

Samuel Hartwell, Challenge Peas,	1 00
M. W. Chadbourne, Peas,	1 00
C. E. Grant, "	1 00
C. H. Brackett, Cucumbers,	1 00
George W. Pierce, Lettuce,	1 00
J. Crosby, Collection,	1 00

July 2.

Peas. — Peck, S. G. Stone, Invicta,	2 00
Second, " " Laxton's Alpha,	1 00

July 9.

Gratuities:—

M. W. Chadbourne, Collection,	1 00
Samuel G. Stone, "	2 00
Josiah Crosby, Portugal Onions,	1 00

July 16.

Gratuities:—

Josiah Crosby, Summer Squashes,	2 00
M. W. Chadbourne, Beauty of Hebron Potatoes,	2 00
C. M. Atkinson, Marvel Peas,	1 00
James Cartwright, Omega Peas,	1 00
Samuel G. Stone, Collection of Beans,	1 00

JULY 23.

Gratuities:—

Marshall P. Wilder, Cucumbers,	$1 00
C. E. Grant, Marblehead Corn,	1 00
W. H. Spooner, Wax Date Beans,	1 00
S. G. Stone, Collection,	3 00
M. W. Chadbourne, Collection,	2 00

JULY 30.

SQUASHES. — Four Marrow, J. Crosby,	3 00
SWEET CORN. — Twelve ears, Samuel G. Stone, Marblehead,	3 00
Second, Samuel Hartwell, Narragansett,	2 00
Third, C. E. Grant, Marblehead,	1 00

Gratuities:—

C. E. Grant, Squashes,	1 00
M. W. Chadbourne, Clark's No. 1 Potatoes,	1 00
Josiah Crosby, Onions,	1 00
James Comley, Laxton's Supreme and Blue Peter Peas,	1 00

AUGUST 6.

SQUASHES. — Four Marrow, Josiah Crosby,	2 00
SWEET CORN. — Twelve ears, Josiah Crosby,	2 00
Second, Samuel Hartwell,	1 00
TOMATOES. — Gen. Grant, M. W. Chadbourne,	2 00

Gratuities:—

L. W. Weston, Collection,	2 00
C. E. Grant, Sweet Corn,	1 00
J Crosby, Beauty of Hebron Potatoes,	1 00
M. W. Chadbourne, Clark's No. 1 Potatoes,	1 00

AUGUST 13.

Gratuities:—

Samuel Hartwell, Burr's Corn,	1 00
L. W. Weston, Weston's Early Corn,	1 00
M. W. Chadbourne, Crosby "	1 00
C. N. Brackett, Acme and Emery Tomatoes,	2 00
Samuel G. Stone, Collection,	3 00
C. E. Grant, "	2 00

AUGUST 20.

Gratuities:—

M. W. Chadbourne, Collection,	2 00
S. G. Stone, "	2 00
Samuel Hartwell, Corn,	1 00

Charles Garfield, Tomatoes, ... $1 00
C. N. Brackett, Acme Tomatoes, ... 1 00
Warren Heustis, " " 1 00

AUGUST 27.

POTATOES. — Peck of any variety, S. Hartwell, Beauty of Hebron, . 2 00
Second, C. N. Brackett, Clark's No. 1, ... 1 00
BEANS. — Large Lima, C. E. Grant, ... 3 00
Second, B. G. Smith, ... 2 00

Gratuities: —

George Hill, Greenflesh Melons, ... 2 00
Samuel Hartwell, Burr's Corn, ... 1 00
C. N. Brackett, two varieties Tomatoes, ... 1 00
Samuel G. Stone, Collection, ... 3 00
C. E. Grant, " 2 00
M. W. Chadbourne, " 2 00
Charles Garfield " 1 00

SEPTEMBER 3.

GREENFLESH MELONS. — Four specimens, George Hill, . . . 3 00

Gratuities: —

Josiah Crosby, Peppers and Corn, ... 2 00
C. N. Brackett, Beans and Tomatoes, ... 1 00
George Craft, Martynias, ... 1 00
C. E. Grant, Collection, ... 2 00
S. G. Stone, " 2 00
M. W. Chadbourne, " 1 00
Charles Garfield, " 1 00

SEPTEMBER 10.

Gratuities: —

C. N. Brackett, Emery Tomatoes, ... 1 00
Samuel Hartwell, Lima Beans, ... 1 00
C. E. Grant, Collection, ... 1 00
M. W. Chadbourne, " 1 00
S. G. Stone, " 1 00

ANNUAL EXHIBITION.

SEPTEMBER 13, 14, 15, AND 16.

Special Prizes.

CAULIFLOWERS. — Best four specimens, J. Cummings, . . . $5 00
CELERY. — Four specimens, Josiah Crosby, ... 5 00

Regular Prizes.

BEETS. — Twelve, J. Crosby, ... 3 00
Second, George F. Stone, ... 2 00
Third, Walter Russell, ... 1 00

Carrots. — Twelve Long Orange, W. W. Rawson,	$3 00
Second, John L. D'Wolf,	2 00
Third, Walter Russell,	1 00
Twelve Intermediate, J. Crosby,	3 00
Second, W. Russell,	2 00
Third, John Cummings,	1 00
Parsnips. — Twelve Long, J. L. D'Wolf,	3 00
Second, Walter Russell,	2 00
Third, M. W. Chadbourne,	1 00
Potatoes. — Four varieties, one peck each, C. N. Brackett,	4 00
Second, Samuel Hartwell,	3 00
Third, Mrs. M. T. Goddard,	2 00
Early Rose, C. B. Lancaster,	3 00
Second, George W. Pierce,	2 00
Third, L. W. Weston,	1 00
Snowflake, J. L. D'Wolf,	3 00
Second, Mrs. M. T. Goddard,	2 00
Any other variety, C. B. Lancaster, Clark's No. 1,	3 00
Second, J. L. D'Wolf, Beauty of Hebron,	2 00
Third, C. N. Brackett, Mammoth Pearl,	1 00
Collection of new Seedling varieties, E. S. Brownell, the Society's Silver Medal.	
Salsify. — Twelve specimens, J. L. D'Wolf,	3 00
Second, Walter Russell,	2 00
Third, M. W. Chadbourne,	1 00
Turnips. — Twelve Swedish, Mrs. M. T. Goddard,	3 00
Onions. — Peck of Danvers Yellow, J. Crosby,	3 00
Second, Walter Russell,	2 00
Third, J. Cummings,	1 00
Red, Walter Russell,	3 00
Second, J. Cummings,	2 00
Third, S. Hartwell,	1 00
White Portugal, Josiah Crosby,	3 00
Second, Walter Russell,	2 00
Third, S. Hartwell,	1 00
Greenflesh Melons. — Four, George Hill,	3 00
Second, I. P. Dickinson,	2 00
Third, John L. D'Wolf,	1 00
Muskmelons. — Four, I. P. Dickinson,	3 00
Watermelons. — Pair, I. P. Dickinson, Round Solid,	3 00
Second, I. P. Dickinson, Black Spanish,	2 00
Third, I. P. Dickinson, Peerless,	1 00
Squashes. — Four Canada, Mrs. M. T. Goddard,	3 00
Second, Josiah Pratt,	2 00
Third, Warren Fenno,	1 00
Hubbard, George Hill,	3 00
Second, Samuel Hartwell,	2 00
Third, John Cummings,	1 00

Marblehead, John Cummings,	$3 00
Marrow, George Hill,	3 00
Second, John Cummings,	2 00
Turban, John Cummings,	3 00
Second, Samuel Hartwell,	2 00
CABBAGES. — Three Drumhead, J. Cummings,	3 00
Second, J. B. Tilley,	2 00
Third, Samuel Hartwell,	1 00
Red, John Cummings,	3 00
Second, C. N. Brackett,	2 00
Third, M. T. Goddard,	1 00
Savoy, J. Cummings,	3 00
Second. Samuel Hartwell,	2 00
Third, W. D. Forbes,	1 00
CAULIFLOWERS. — Four, W. W. Rawson,	3 00
Second, Walter Russell,	2 00
Third, John Cummings,	1 00
CELERY. — Four roots, W. W. Rawson,	3 00
Second, Josiah Crosby,	2 00
ENDIVE. — Four heads, George W. Pierce,	2 00
HORSERADISH. — Six roots, W. W. Rawson,	3 00
Second, Walter Russell,	2 00
LIMA BEANS. — Two quarts, Samuel G. Stone,	3 00
Second, Benjamin G. Smith,	2 00
Third, C. E. Grant,	1 00
CORN. — Sweet, twelve ears, John Cummings,	3 00
Second, Robert Elder,	2 00
Third, Samuel Hartwell,	1 00
Yellow or Field, twenty-five ears, Mrs. M. T. Goddard,	3 00
Second, C. N. Brackett,	2 00
Third, Robert Elder,	1 00
EGG PLANT. — Four Round Purple, Walter Russell,	3 00
TOMATOES. — Three varieties, George H. Rich,	4 00
Second, C. N. Brackett,	3 00
Third, S. G. Stone,	2 00
Acme, Twelve specimens, John Cummings,	2 00
Second, George W. Pierce,	1 00
Boston Market, J. Cummings,	2 00
Second, Walter Russell,	1 00
Emery, J. Cummings,	2 00
Second, George W. Pierce,	1 00
Gen. Grant, John Cummings,	2 00
Second, C. E. Grant,	1 00
Any other variety, B. K. Bliss & Sons, Mayflower,	2 00
Second, John Cummings, Paragon,	1 00
MARTYNIAS. — Twenty-four, George W. Pierce,	2 00
Second, M. W. Chadbourne,	1 00

Peppers. — Twenty-four, George F. Stone,	$3 00
Second, Josiah Crosby,	2 00
Third, Walter Russell,	1 00
Cranberries. — Half-peck, O. M. Holmes,	2 00
Gratuities: —	
I. P. Dickinson, Melons,	2 00
A. T. Brown, Egg Plants,	1 00
Henry R. Comley, Parsley,	1 00
John Cummings, Collection,	4 00
George W. Pierce, "	3 00
Walter Russell, "	3 00
Samuel Hartwell, "	2 00
C. E. Grant, "	2 00
L. W. Weston, "	1 00
W. D. Forbes, "	1 00
George Craft, "	1 00

September 24.

Gratuities: —	
Samuel G. Stone, Collection,	2 00
C. N. Brackett, "	1 00
C. E Grant, "	1 00

October 1.

Salsify. — Twelve specimens, M. W. Chadbourne,	2 00
Brussels Sprouts. — Half-peck, Mrs. M. T. Goddard,	2 00
Cabbages. — Three Drumhead, John Cummings,	2 00
Second, W. S. Janvrin,	1 00
Red, John Cummings,	2 00
Second, C. B. Lancaster,	1 00
Savoy, John Cummings,	2 00
Cauliflowers. — Four, John Cummings,	2 00
Celery. — Four roots, Josiah Crosby,	2 00
Gratuities: —	
B. G. Smith, Lima Beans,	1 00
A. W. Nelson, Strawberry Tomatoes,	1 00
Samuel G. Stone, Collection,	3 00
C. E. Grant, "	2 00
Samuel Hartwell, "	1 00
C. N. Brackett, "	1 00

October 8.

Gratuity: —	
Samuel G. Stone, Collection,	2 00

OCTOBER 15.

Gratuity : —

C. E. Grant, Collection, ... $2 00

OCTOBER 21.

Gratuity : —

Josiah Crosby, Celery, ... 2 00

NOVEMBER 5.

Gratuity : —

Josiah Crosby, Celery, ... 1 00

CHRYSANTHEMUM SHOW.

NOVEMBER 9.

CELERY. — Four roots, Josiah Crosby, ... $2 00

CAULIFLOWERS. — Four, John L. Gardner, ... 2 00

DECEMBER 3.

Gratuity : —

Josiah Crosby, Celery, ... 1 00

REPORT

OF THE

Committee on Gardens,

FOR THE YEAR 1881.

By JOHN G. BARKER, Chairman.

Although the results of our efforts to awaken a more general interest in this department of the Society's work have not been altogether what we hoped for, the past season has shown a marked increase over the previous in the number of places to which the attention of the Committee has been called, and we trust the record of our doings, which we now present to you, will prove to be of sufficient interest to cause still greater activity on the part of all the members of the Society, and that each will do his best to facilitate the efforts of the Committee in obtaining any information that may be worthy of record, and may have a tendency to advance our cause. We call especial attention to the Hunnewell Triennial Premiums, and also to the Society's Prizes for the year to come, with the sincere hope that there may be an earnest competition for them all.

Pine Hill, the Residence of Hon. Francis B. Hayes.

Our first visit was on the 23d of June, to Lexington, upon invitation of our worthy President, to visit his extensive grounds. The day was all that could be desired, and in addition to the members of the Committee, we were honored with the presence of many of our distinguished horticulturists, and we noted with pleasure that of our worthy Ex-President, the Hon. Marshall P. Wilder, President of the American Pomological Society, whose kind and enthusiastic words proved to us that, while advancing in years, he is as young as ever in his zeal for the promotion of the

cause of horticulture, which has been to him one of the dearest objects of his life.

We hardly need to mention that we were received in the most generous and hospitable manner, of which many have had personal experience, more than once repeated. After a delightful repast prepared for us at the mansion house, we were escorted to the principal object of our visit, the Rhododendron tent, a structure fifty feet square, arranged in an artistic manner, and planted with the hybrid varieties of the Rhododendron. The eight standards were very conspicuous, the varieties being Lady Eleanor Cathcart, Concessum, Joseph Whitworth, Jean Verschaffelt, Vandyck, The Queen, Mrs. Milner, and Fastuosum flore pleno. These fine plants were among the most ornamental on the grounds, as all must admit, and standing as they did conspicuously above the dwarf varieties, with their well formed heads of beautiful flowers, they were objects of great admiration, and indeed when not in flower the beautiful glossy foliage is very effective. In addition to the standards there were over one hundred varieties of dwarf plants, many of them quite new and flowering for the first time in this country, in all shades of color, from a rich deep scarlet to pure white. We also noticed fine specimen plants in tubs of the beautiful *Bougainvillea glabra*, which were laden with lovely pink bracts. It deserves a place as a decorative plant in any choice collection. There was a very fine specimen of *Dracœna Draco*, a highly ornamental plant which may be brought out from the greenhouse among the earliest of plants; also a fine plant of *Alsophila excelsa*, one of the most beautiful greenhouse tree ferns; and an Azalea Exquisita, a very large specimen plant, probably the largest in this country, and a mass of bloom. But space forbids enumerating all the wealth of plants, beautiful in flower or foliage, with which the tent was crowded.

The general improvements on the whole estate since the Committee last visited the grounds, when the Hunnewell Triennial Premium was awarded, are very marked. A large conservatory, forty by sixty-five feet, has been erected, in the centre of which are three large camellias from the collection of the Hon. Marshall P. Wilder; the varieties are *Alba flore pleno* and *Feastii*. A fine specimen plant of the showy *Allamanda Schottii* was very noticeable. Also the beautiful *Nymphœa cœrulea*, *N. flava*, and *N. Devoniensis*, and *Aponogeton distachyon*, all of which can be grown in pots and tubs as well as in a tank, and are of very easy culture. It is

impossible to make more than brief mention of the objects that attracted our notice; there was a large collection of choice Azaleas selected with much care, and many other species and varieties that go to make up a choice collection of plants. We were informed that in future this conservatory will be used for the cultivation of rare summer flowering plants, and being situated very near the mansion house, it will undoubtedly be an interesting feature of the estate. The workmanship of the building is of the very best; in the arrangement there is no stage in the centre, it being filled with large plants; on the sides there is only low shelving, while at one end is a raised platform (access being had at either end by steps) on which are placed settees, where the visitor can sit down and look on the plants, the only way to see them properly. Connected with the conservatory is the vinery, where the vines were already in bearing, and their excellent condition was good proof of skilful cultivation received. We also noticed, near by, a small span-roofed house intended for growing roses, and numerous pits and frames, in which many of the Indian Azaleas are kept during winter, and which are always valuable adjuncts to a well ordered place.

Our attention was also directed to the pit, forty feet square, built in the woods; the sides are of stone, with large double doors in one end, which in winter are closed up tight, access being had through one of the skylights in the roof. In this pit are kept the Hybrid Rhododendrons, Indian Azaleas, Hollies, and all half-hardy plants. During the winter of 1880 the temperature was carefully looked after, and was kept at an average of 38°; two thermometers were hanging up, one at each end, showing that the temperature did not vary four degrees all through the season. Ventilation was given freely every mild day. This has proved a very gratifying success, and demonstrated the fact that it is not necessary to have extensive green and hot houses in order to grow and keep plants for summer decorative purposes.

In addition to what we have already noticed, we desire to mention some of the evergreens which have been planted out over two years, and have proved perfectly hardy.

Abies alba gloriosa.

Abies Engelmannii.—Indigenous to the higher parts of the Rocky mountains, and a very pretty species.

Abies orientalis.—Already known as a fine lawn tree, but of somewhat slow growth.

Abies macrophylla. — Mr. Hayes considers this one of the hardiest and best; it is very beautiful.

Abies pendula. — Certainly a very peculiar plant, but by no means handsome; it is perfectly hardy, and should have a place among evergreens.

Abies pyramidalis.

Abies Alcoquiana. — A splendid tree, and yet scarce.

Abies diffusa.

Picea Pichta. — A rather small species, with peculiar dark foliage; very hardy, and can be highly recommended for general cultivation.

Retinospora argentea. — A very distinct and desirable variety.

Retinospora filifera. — Also desirable; both this and the preceding were introduced from Japan.

Retinospora pisifera aurea, in a bed planted two years, produced a very pleasing effect. It is a beautiful plant, of compact habit, with branchlets of a bright golden color.

Among dwarf evergreens which attracted our attention more particularly were the three following varieties: *Abies nigra pumila*, *A. Hudsonia*, and *A. Gregoryana.*

Another evergreen of great merit, that has stood the test of several winters, is *Sciadopitys verticillata*, the Umbrella Pine of Japan, which bids fair to become one of the most popular ornamental evergreen trees.

Of deciduous trees, the curious *Aralia* (*Dimorphanthus*) *Mandschurica*, a perfectly hardy tree, with palm-like habit, is a remarkable novelty and will prove of great value in ornamental gardening.

Betula purpurea, the Purple Birch, is always very effective.

Magnolia hypoleuca is new.

Magnolia Alexandrina closely resembles *M. Soulangeana.*

Magnolia stellata (Hall's Japan Magnolia), Mr. Hayes informs us is the earliest and one of the best.

Pirus Malus floribunda.

Acer Negundo foliis aureo variegatis, the golden variegated Negundo.

Acer Negundo variegata. This is one of the most beautiful variegated trees, especially when so planted that evergreens form the background; Mr. Hayes's largest specimen is twelve feet high, and was spoken of by Mr. Parsons as one of the best he knew, and worth a journey from New York to see.

Of the new Japan Maples the following varieties, which have been planted out three years and have proved thoroughly hardy, seem to be among the valuable plants for future ornamental purposes, although in many localities it is far from settled what varieties will prove hardy.

Acer polymorphum reticulatum.
" " *albo variegatum.*
" " *palmatifolium roseo pictis.*
" " *versicolor.*
" " *sanguineum.*
" " *roseo marginatum.*
" " *palmatifidum.*
" " *pinnatifidum atropurpureum.*
" " *palmatum.*
" " *sanguineum variegatum.*
" " *aureum.*
" " *atropurpureum.*
" " *polymorphum.*
" *Japonicum.*

Of over fifty varieties of Clematis we noted the following six as most striking.

Froebel.
Jackmanni (intense violet purple).
James Bateman.
Prince of Wales.
Sieboldii.
William Bull.

Of Hybrid Perpetual Roses, about sixteen hundred plants, in two hundred of the most select varieties are cultivated.

Of flowering shrubs, we noticed the justly popular *Hydrangea paniculata grandiflora* in the highest perfection, both as standards and bushes. *Exochorda grandiflora* was very fine; *Spiræa Thunbergii* very delicate, and one of the best of the genus; *Weigela Lavalleei*, is an excellent variety, and *Viburnum plicatum* is one of the very best of the genus, the habit being particularly fine; Buist's Variegated Althæa, is very striking and effective, holding the variegation excellently, and must prove very useful. *Bignonia grandiflora præcox* is a magnificent plant, producing a great abundance of large deep coppery crimson flowers; very valuable and thoroughly hardy.

Having made special mention of such trees, shrubs, and plants as seem most desirable, we would add that the general improvement

of the entire estate is very noticeable. The avenue leading to the Pinetum has been planted on either side with choice evergreens, and in the grove, over two hundred of Van Houtte's seedling rhododendrons have been planted under the partial shade of the large trees. Returning by Maple Avenue we noticed that numerous beds had been cut out and planted with rhododendrons, and the choicest varieties of hardy shrubs, and it is only a matter of time when these beautiful avenues will be a very attractive feature of the place. The large masses of hardy rhododendrons near the entrance to the grounds were in fine order, as were also the hardy azaleas. The wide extent of lawn with a very commanding view of the pine woods from the piazza of the mansion house was exceedingly delightful. The neatly trimmed hedges which shut off the rear of the house from view, were in splendid condition. It was noticeable that there were but few beds of plants of the modern style, but here and there was a bed of Cannas, and then one of Geraniums and Coleus so placed as to give enchantment to a distant view. The fine sub-tropical bed at the front of the house deserves especial mention. It was composed of *Musas*, *Phormium tenax variegatum*, *P. Colensoi*, *P. atropurpureum*, *Ficus elastica*, *Grevillea robusta*, *Pandanus utilis*, *Agave Americana*, and *Yucca variegata*, the whole bed being carpeted with *Coleus* and *Achyranthes*, and edged with *Agave Americana variegata*. We also noticed in suitable places with good effect on the lawn, a fine pair of plants of *Fourcroya Lindeni;* also *Araucaria Cookii* and *A. excelsa*, *Musa ensete* and *Beaucarnea glauca*.

In selecting what we have for special notice, in a place so large, and where there is so much to attract attention, and all worthy of note, we trust that we have done no injustice to what remains unmentioned. We all admire the enthusiasm of our honored President, and we wish to record our thanks for what he has done for the advancement of the most beautiful of all arts, horticulture; and our earnest wish is that his life may long be spared to enjoy the fruits of his labors.

The Chairman also wishes to record his thanks to Mr. Comley, the accomplished and skilful gardener, to whom on a subsequent visit he was much indebted for the information obtained, and which has helped very much to make up this report.

Thomas C. Thurlow's Peach Orchard.

On the 27th of July the Committee visited the Peach Orchard of Thomas C. Thurlow, at West Newbury. The land selected for the orchard is the southern slope of a high hill and is not valued at over fifty dollars per acre; the space occupied being about three acres. The trees are eighteen feet apart each way and were planted in the spring of 1875, and at the time of planting a quart of wood ashes was worked in the ground around each tree. Mr. Thurlow thinks it essential that a vigorous growth should not be encouraged until the trees begin to bear. All the trimming that has ever been done was in the last of May or the first week in June, and consisted chiefly in cutting out dead wood. But a small quantity of fertilizing material has been used; half a ton of Pacific guano and a small quantity of the Darling fertilizer was applied this year, the whole not costing over fifty dollars. The cultivation has been done with the horse, and the ground has been hoed by hand but once.

The Committee were much pleased with the appearance of the trees; the growth and color of the wood, together with a moderate setting of fruit gave promise of a very fine crop, which we anticipated would give the most satisfactory results. At this time we could see but two trees that had any appearance of the yellows. But in a subsequent letter from Mr. Thurlow, under date of August 3d, we learned that the eight or ten trees of the early varieties were nearly a failure. The Alexander's Early ripened first, but nearly all rotted before they were fully ripe. Then one or two each of Early Louise and Early Rivers went about the same way. The Early Beatrice, which Mr. Thurlow considers the best early peach he has, was less affected by rot. In seeking to account for the rot, it was thought that the unusually wet weather at the time of ripening, together with the bees and other insects, was the cause. Mr. Thurlow has noticed large numbers of honey bees endeavoring to extract the juice from the fruit, and from that single spot on the fruit the rot set in and eventually the fruit would drop off the tree.

Under the same date, Mr. Thurlow informed us that the yellows had unfortunately broken out in the middle of the orchard, where the very best trees were situated; and that two years ago it broke out in the same way, and by then cutting down and carrying off

some twenty-five or more trees he had hoped that it was eradicated, but to his great disappointment it broke out this year immediately adjoining where it was in 1879, and thirty more of the very best trees have been sacrificed. Immediately after the removal of the trees, lime was put over the stumps of the same, and around them, and having attended to the liming very thoroughly, Mr. Thurlow hopes that he has now succeeded in checking this great scourge to the peach trees. He intends to lime his whole orchard next spring, besides putting ashes around each tree.

After all that has been written about the yellows, and a very thorough search for any information that could possibly be of any value on this point, we must confess that, like many others, we have not yet found the preventive or the remedy; but, if it is caused by a fungus, as many think it is, lime, in a caustic state, may prove beneficial, and, perhaps, if properly applied from the time of planting, may be a preventive. Mr. John Rutter, of Pennsylvania, a successful peach grower, and author of a work on peach culture, advocates such an application.

The committee again visited Mr. Thurlow on the 21st of September, and, although they did not find so much of a crop as might have been expected, they desire to mention the Crawford's Early as being particularly fine, and altogether the best flavored fruit; but, if nothing further happens to the trees, it seems highly probable that a good crop may be expected another season, as the wood was well ripened and in good bearing order. At that time the Crawford's Late also promised well. On the 4th of October Mr. Thurlow wrote that he had two trees of Osgood's Yellow, which were nice, and were full without rotting, promising much better than the Crawford's Late.

In the cultivation of this orchard Mr. Thurlow says, that if all the trees are destroyed now he is amply paid for the trouble he has been at, and has demonstrated the fact that peaches can be raised at little expense, and on land that would be of little or no value for anything else, as the following facts illustrate: The third year from planting, the fruit realized $100; the fourth year, $600; the fifth year, $50, and the sixth, $400; in fact, Mr. Thurlow is so sanguine in regard to cultivating peaches successfully and profitably, at a price that will bring them within reach of the masses, that he proposes to buy quite a farm on elevated ground, and devote it entirely to peach culture. The Committee award to Mr. Thurlow the first premium for the best peach orchard.

We desire, also, to mention the very excellent condition of Mr. Thurlow's nursery, and his systematic method of naming trees and shrubs, using every means to give the purchaser just what he orders, and the best that can be grown. We were much pleased with his fine bed of *Lilium longiflorum*, which at the time of our first visit was in full bloom, and was estimated to have at least two thousand flowers. It was well worth a trip to West Newbury to see.

Marshall Miles's Peach Orchard.

On the 24th of September the Committee visited the orchard of Marshall Miles, at Concord, Mass., which was, unfortunately, entered too late for premium. Mr. Miles has, however, at the request of the Chairman, transmitted an interesting statement, which is appended to this report.

As far as obtaining a crop is concerned, the trees in Mr. Miles's orchard were all very heavily laden with fruit, and each was a perfect picture, and the crop, as a whole, was such as we never saw before. Although Mr. Miles informed us that he had thinned out considerable, evidently too much was left on the trees for their future good, and flavor was largely sacrificed to abundance of crop. The cultivation is so well explained in Mr. Miles's statement, that it is not necessary to speak on that point. The appearance of the trees was good evidence of the success obtained. The Crawford's Early were being picked; the Crawford's Late promised well, but the Committee were of the unanimous opinion that the Oldmixons were by far the best. The visit to Mr. Miles was very gratifying to the Committee, inasmuch as he has, by energy and perseverance, fully proved that peaches can be successfully raised in our uncertain climate, and the Committee unanimously award to him a gratuity of $15 for successful cultivation of the peach.

John B. Moore's Peach Orchard and Vineyard.

The same day the Committee visited the grounds of John B. Moore, and it is needless to speak of the very excellent condition in which everything was found, as all who know Mr. Moore are fully aware of the superior methods of cultivation adopted by him, which his exhibits fully attest; the whole place was a model of neatness and good order. The young peach orchard promises much for the future, and the Crawford's Early, in size, and particularly in flavor,

were the best we have seen and tasted. The vineyard was in good order also. The Moore's Early grapes were particularly noticeable; the fine bunches and highly colored fruit were ample evidence that the value of this grape has not been over-estimated. The fine collection of hardy plants, particularly the Phloxes and Hybrid Perpetual Roses, was in excellent condition.

We desire to express our thanks to Mr. Thurlow for his unbounded kindness and hospitality; also to Mr. Moore and Mr. Miles for attentions shown the Committee.

Our thanks are also due to Major Ben: Perley Poore, of Indian Hill Farm, West Newbury, on the occasion of our second visit to Mr. Thurlow, for kind attention in showing the Committee what he had been able to accomplish on a waste, barren hill, where once hardly a blade of grass would grow, but which is now covered with a luxuriant growth of a great variety of forest trees, both deciduous and evergreen. We hope at some future time to be able to make a more extended report of this interesting place. Mr. Poore was some years ago awarded the premium of $1,000, by the Massachusetts Society for Promoting Agriculture, for the best plantation of oak trees.

In conclusion, we would suggest that the Committee be instructed to visit such places as contain objects of interest, from time to time, as they see fit, if not invited formally by the proprietors, and to make such reports as may be of interest to the Society, and promote the art of horticulture.

JOHN G. BARKER,
GEO. S. HARWOOD.
E. W. WOOD.
HENRY ROSS.
JOHN C. HOVEY.
C. N. BRACKETT.
WM. H. SPOONER.
} *Committee.*

STATEMENT OF MARSHALL MILES.

Gentlemen : —

The cultivation given the orchard I desire to enter for premium is as follows :

The land selected five years ago for my peach orchard consists of three and a half acres, entirely free from stones, the surface crowning in the centre, thus giving a gentle slope to nearly every point of the compass. The soil is a sandy loam, slightly alluvial, intermingled with clay to a depth of fifteen inches ; the whole resting upon a subsoil of yellow loam. This land had been cultivated with crops in rotation, including grass, for many years, and had been manured with barnyard manure, but not liberally.

In preparation for setting the trees, the land, which was in grass, was ploughed in the fall, and again in the spring, and thoroughly pulverized. The four hundred trees, divided between the Crawford's Early, Crawford's Late, and Oldmixon Freestone, when set, were one year from the bud, and were set about the middle of May, six to ten inches deep, and twenty feet apart each way, so as to allow the sun access to the roots even when fully grown. Great care was used in placing the roots naturally and putting the earth in firm contact with every fibre. No manure of any kind was applied at the time of setting, but potatoes were immediately planted, manured with barnyard manure quite liberally, and hoed three times ; they produced four hundred bushels of good potatoes. No other manure was applied to the trees the first year, but they were carefully trimmed and headed back sharply, so as to produce a good shape. This heading in has been continued in September every year. As soon as the ground was frozen, I mulched the trees with meadow hay, covering out beyond *all* the roots, carefully keeping the mulching in its place during the winter and until the season was confirmed, thus ensuring the protection of the buds from too early development. This mulching was renewed during midsummer, serving as a protection from drought while modifying the heat of the sun.

The second year I raised a crop of two hundred bushels (in the ear) of pop corn. It was manured with barnyard manure spread broadcast and ploughed in. No manure was applied directly to

the trees. The growth of the trees at this time was most vigorous, and they were carefully trimmed back.

The third year I raised a crop of white beans, which was manured in the hill with a little hen manure composted liberally with muck, producing fifty-one bushels of beans. During the season, which was a very unpropitious one, the trees grew rapidly, producing ten bushels of fruit. Great pains was taken to keep the growth shapely.

The fourth year the orchard was ploughed but not planted. About the 15th of May thirty bushels of air-slacked lime was dug in about the outer circle of the branches, thus reaching the small roots. In June a mixture of saltpetre waste and wood ashes was applied in the same manner. The crop set so abundantly that fearing to tax the trees too much, what would have been equivalent to one hundred bushels of fruit was picked off in a green state. The peach crop for that year was seventy-five bushels of very fine fruit.

Last year the crop of corn, potatoes, and beans, was manured in the hill; the corn and potatoes with a fertilizer composed of bone dust and muck, and the beans with hen manure and muck. The crop of peaches was twenty-five bushels of fair, large fruit, but this was not a peach year.

The present year I have planted no crop among the trees but have kept the ground as clean as I could conveniently, and about the middle of July I gave the orchard a light dressing of hen manure and wood ashes, and applied half a barrel of water to each tree, to assist in carrying out the crop. I thinned out a large quantity of green fruit, but think it would have been quite as well if I had taken out more, although the fruit is of good size and the trees have borne up remarkably well, very few of them having broken, owing in part to the very favorable weather. I have marketed up to this date about sixteen hundred baskets of good fruit, which I should judge to be not much more than two-thirds of the entire crop, as the late varieties have not yet matured.

The cultivation described above may not only show to a considerable extent what food peach trees need, but may also suggest how the land can at the same time be otherwise utilized with safety to the trees.

Respectfully yours,

MARSHALL MILES.

Concord, Mass., Sept. 26, 1881.

THE YELLOWS.

The Committee also take the liberty to append to their Report the following extract from the Annual Report of the Michigan Pomological Society, for 1878 (page 262), which they deem a good summary of what is known concerning the yellows and the best course to pursue in regard to it, and which may prove useful to those interested in growing peaches. We may not be able to make such laws as are proposed in the last paragraph of the extract, but if all growers can be made to realize the importance of following these suggestions, the terrible disease may at least be checked, if not eradicated. The Committee also recommend to peach growers "The Culture and Diseases of the Peach," by John Rutter; a book which contains many valuable hints and cannot fail to be a helpful guide.

More about the Yellows.

The following communication was presented by Mr. N. H. Bitely, as a compilation of facts elicited by the yellows discussion:

1. That the disease is contagious, and in some manner is communicated from tree to tree, from orchard to orchard, and from one neighborhood to another.

2. That it did not originate in Michigan, but was probably imported from its original home, the peach region of New Jersey, Delaware, and Maryland.

3. That neither soil nor cultivation is a factor in its spread.

4. That both budded and seedling trees, and all varieties of either are subject to its attack; although there are some facts to show that the white fleshed peaches are more exempt.

5. That it may be communicated from tree to tree by pruning knife, shears, or saw. Hence the implement used in pruning a tree should be thoroughly cleaned before making a cut upon another tree.

6. That no remedy is now known except to destroy the diseased trees promptly, and to neglect such destruction is sure death to an orchard, and all other orchards in the vicinity.

7. That the prompt eradication and burning of the diseased

trees may stop it entirely in an orchard, and at least will greatly retard its progress.

8. From the foregoing the conclusion seems inevitable that nothing but a stringent law, for the destruction of the diseased trees, applicable to the whole State, diligently and energetically enforced, will prevent the loss of every peach tree in the State. Without such a law we may bid a long farewell to this most luscious fruit which has so long been both a source of pride and revenue to the State. With such a law, so enforced, the future of the peach will be more hopeful.

REPORT

OF THE

COMMITTEE OF ARRANGEMENTS,

FOR THE YEAR 1881.

The Committee of Arrangements would respectfully submit their Report for 1881.

The exhibitions throughout the year have been highly gratifying to the members of the Society and to the public generally, and the Society has every reason to know that the interest in the cultivation of Fruits, Flowers, and Vegetables is constantly increasing.

Meetings of the Committee of Arrangements have been held at stated times during the year, and whenever it was necessary to consult as to the best means and methods for arranging and managing the various exhibitions. The Azalea and Rose, the Rose and Strawberry, the Annual, the Chrysanthemum, and the weekly exhibitions have, if possible, surpassed those of other years, and have given much pleasure to the many visitors.

At the Annual Exhibition, in September, the Plants and Flowers were shown in the Music Hall, and were so beautifully and artistically arranged as to elicit the admiration of every one, and more especially the members of the American Pomological Society, who were the guests of the Massachusetts Horticultural Society.

Records of each meeting of the Committee of Arrangements have been kept by the Secretary of the Society, and might be given here if necessary, but as they relate only to business details concerning the exhibitions of the Society, they would fail to be of general interest.

Adopted by the Committee.

CHARLES H. B. BRECK, *Chairman.*

MEETING

OF THE

AMERICAN POMOLOGICAL SOCIETY.

The Eighteenth Biennial Session and Exhibition of the American Pomological Society was held in Boston on the 14th, 15th, and 16th of September, 1881, at the invitation of the Massachusetts Horticultural Society. The two spacious halls in the Horticultural Society's building were devoted to the fruits contributed to the Pomological Society's exhibition, and to the fruits and vegetables exhibited by the Horticultural Society, the exhibition of plants and flowers being held in the Music Hall. The central and two western tables in the Upper Horticultural Hall were set apart for the fruits of the Pomological Society, which were gathered from every part of the United States and the Dominion of Canada, from New Brunswick to California, and from Montreal to Georgia. The most noticeable collection was from Michigan. It included a large variety of apples, pears, plums, and peaches, *Monstera deliciosa; Asimina triloba* (papaw) and other western fruits and nuts; also an instructive collection of the useful and injurious insects of the State. S. C. Harlow, of Bangor, Maine, exhibited 14 varieties of pears, and 68 of apples. James H. Ricketts, of Newburgh, New York, showed 18 varieties of his new seedling grapes, and Ellwanger & Barry, of Rochester, N. Y., a collection of new pears and grapes. The Montreal Horticultural Society exhibited an interesting collection of 34 varieties of apples; B. S. Fox, of San José, California, 90 varieties of seedling pears; Dr. J. W. Strentzel, of Martinez, Cal., a collection of grapes, oranges, and a variety of other fruits; several contributors at Los Angeles, Cal., showed oranges, lemons, Japanese persimmons, pomegranates, etc. P. J. Berckmans, of Augusta, Georgia, also showed several varieties of the new Japanese persimmons. James F. C. Hyde exhibited fruit of the *Actinidia polygama*, a climbing

shrub from Japan, which fruited for the first time in this country the present year. Hon. Marshall P. Wilder exhibited 164 varieties of pears; Hovey & Co., 190 varieties; Warren Fenno, 53 varieties; Benjamin G. Smith, 50 varieties; and there were many exhibitors of smaller collections. The whole exhibition comprised 535 dishes of pears, 188 of apples, 17 of peaches, 17 of plums, 100 of grapes, and 71 of miscellaneous fruits, making a grand total of 928 dishes. The attention of members and delegates at the previous meetings of the Society had been so much engrossed by the great quantities of fruit exhibited, that the sense of the meeting at Rochester, in 1879, was that the exhibition of large collections of fruit was not desirable, but that the show of fruits should be confined mainly to new or rare varieties, or such as for any reason possessed special interest, and hence the quantity exhibited was less than in previous years.

The meetings of the Pomological Society, for the discussion of fruits, were held at the Hawthorne Rooms, on Park Street, beginning at ten o'clock in the morning of Wednesday the 14th of September, when the delegates and members were welcomed in behalf of the Massachusetts Horticultural Society, by the President, Hon. Francis B. Hayes, who spoke as follows:

Mr. President and Gentlemen of the American Pomological Society:—In behalf of the Massachusetts Horticultural Society I cordially welcome you all who have honored our society and city by your presence on this occasion. From the Dominion of Canada to the everglades of Florida, from the Atlantic to the Pacific shore, all receive our warmest greetings. We feel as if you were children of our own, connected so intimately as your society has been with ours, the elder one, from your birth. If not our offspring, you are our very near and dear relations, and as such we welcome you to our home. It is with pride we receive as our guests so distinguished and useful a society as yours, and we are highly gratified to have the privilege of tendering all the facilities at our command to make your sojourn with us both profitable and pleasant to you.

You will see in this city and State a community diligently engaged in the peaceful arts of life; some are well known to you as being deeply interested in agricultural and horticultural pursuits. Here is the home of those who have been largely occupied in fostering manufacturing industries, illustrated by the two extensive exhibitions of mechanical art now presented in this city, and in

opening new avenues of commerce for the interchange of commodities between the different sections of our country, thereby uniting in the bands of mutual interest and sympathy all parts of this continent. If you are interested in the cause of education, our public schools, and schools and galleries of art, as well as our higher seminaries of learning, will be open for your inspection. Should you desire to see what we have done in horticulture, you have admission to the gardens of Hunnewell, Wilder, Payson, Sargent, Gray, Gardner, Ames, Hovey, and others. Should you be pleased to see places associated with the struggles of our fathers in asserting and maintaining their cherished principles of religious, civil, and political freedom, you will visit Plymouth Rock, Lexington, and Concord, and, within the limits of this municipality, Bunker Hill and Dorchester Heights, as well as Faneuil Hall, and the Old South Church, from which the tocsin of liberty was sounded, rousing men throughout the land to unite with heart and hand in securing their sacred, inalienable rights.

It is a most pleasant thought, Mr. President, that this nation is at peace with itself and all the world. We have "beaten our swords into ploughshares and spears into pruning hooks," and the entire Anglo-Saxon race is now harmoniously working out together the grand problems for the extension and perpetuity of freedom and the advancement of humanity.

In these noble objects, sir, your society has a deep interest. About one-third of a century has elapsed since your organization, and you may look with great satisfaction upon what you have accomplished. By your instrumentality, chiefly, the cultivation of choice fruits has been extended throughout the larger portion of this continent. You have been far in advance of all others in promoting the production of the largest and best varieties of fruits, and in naming them, so that the world can make its selection through the information your association has obtained and disseminated with great labor and liberality. Thus you have largely contributed to the comfort and happiness of mankind, besides augmenting in a wonderful manner the wealth of this country. And, better than all this, your association has exerted a powerful influence for the common good in bringing together men of large intelligence and ability from the different sections of this country and the great Northern Dominion, and thereby cultivating sentiments of respect and friendship for each other, and estab-

lishing a common brotherhood of laborers, having for the object of their work, in the development of the resources of nature, the welfare of mankind.

You must pardon me, gentlemen, for expressing the gratification I and my associates have, that in this great work of moral and material improvement our venerable fellow-citizen, who for several years filled the chair which I now occupy, is your leader. For more than thirty years you have with unanimity selected him to preside over your body, and you fully appreciate and gratefully acknowledge how much has been accomplished by your society through his zeal, indefatigable industry, and wise counsels. Long may his life of usefulness be preserved to us all!

You, sir, and your associates have the best wishes of the Massachusetts Horticultural Society that your convention may be harmonious, agreeable, and promotive of the important objects of your organization; and we shall hope you may have no cause for regret that you have honored us by your presence.

At the conclusion of Mr. Hayes's remarks, President Wilder spoke in the language following:

Mr. President:—In behalf of the American Pomological Society I beg to return you our sincere thanks for your kind words of welcome, and for the elegant and commodious preparations you have made for our reception.

We are right glad to be here once more, and to accept of the hospitalities which you have so generously extended to us,—here in the old Commonwealth of Massachusetts, the land of the Puritan and Pilgrim fathers—here in old Boston, from which emanated some of the first fruits of American pomology; here where William Blackstone, the first white settler on our peninsula, planted an orchard on yonder Capitoline Hill, two hundred and fifty years ago; here where John Winthrop soon after planted a vineyard and orchard on his island farm in our harbor; here where John Hancock had his nursery a hundred years ago; here at the home of the Massachusetts Horticultural Society, the second permanent institution of the kind on this continent; and may I not add, here at the home of your ancient president, where for more than half a century he has labored for the advancement of the science of the soil.

But, Mr. President, as I shall address the society more formally this afternoon, I will refrain from further remarks except to say

that we hope to be honored with your presence and that of the members of your society during our discussions.

Mr. Hayes then arose and extended an invitation of the society to the banquet on Friday evening, in the following words:

Mr. President:—I respectfully invite you and all other members of the American Pomological Society, with your ladies, to a banquet which the Massachusetts Horticultural Society will give on Friday evening next in honor of your association.

The biennial address of the President was delivered in the afternoon, and the remaining two days of the session were devoted to receiving the reports of committees, the reading of essays and other papers on pomological subjects, and the discussion of the characteristics and value of the different fruits.

The Banquet.

The banquet at Music Hall, on the evening of Friday, the 17th, was a fitting conclusion to a week devoted to the study of nature, and the exposition of her rich offerings of fruit and flowers. The scene in the great hall was most beautiful and inspiring. The rare exotics which had been exhibited there through the week, decorated the platform, the balconies, and the sides of the hall, imparting to it an air of refinement and elegance; and tasteful bouquets were arranged on the tables, or suspended from the balconies. The plants and flowers, and still more, the bright, happy faces of the hundreds of ladies and gentlemen present, made up a picture at once charming and exhilarating, while the musical strains that ever and anon came floating from the rear balcony, where the Germania orchestra was stationed, filled the air with a concord of sweet sounds that were in happy harmony with the time and the occasion. Shortly after six o'clock, hearty applause announced the appearance of the President of the Horticultural Society, Hon. Francis B. Hayes, with his Excellency, Governor Long, on the right, and Hon. Marshall P. Wilder, President of the Pomological Society, on the left, the three taking seats at the front centre table. Others on the platform, were Ex-Governor Frederick Smyth, of New Hampshire, Hon. A. W. Beard, Collector of the port of Boston, Rev. Samuel K. Lothrop, D.D., Patrick Barry, First Vice-President of the Pomological Society, Samuel B. Parsons, of Flushing, N. Y., Dr. John A. Warder, President of the Ohio Horticultural Society, T. S. Gold, Secretary of the Con-

necticut Board of Agriculture, Hon. T. T. Lyon, President of the Michigan Horticultural Society, Professor William J. Beal, of the Michigan Agricultural College, Secretary of the Pomological Society, William Saunders, of the United States Department of Agriculture, Hon. J. E. Mitchell and A. W. Harrison, of Philadelphia, Charles M. Hovey and William C. Strong, Ex-Presidents of the Massachusetts Horticultural Society, Hon. Charles L. Flint, Ex-Secretary of the Massachusetts Board of Agriculture, Henry A. Breed, of Lynn, one of the founders of the Massachusetts Horticultural Society, Hon. Thomas C. Amory, Major Ben: Perley Poore, Rev. George E. Ellis, D.D., and Benjamin G. Smith, Treasurer of the Pomological Society.

Rev. Dr. S. K. Lothrop asked the blessing, and after an hour's attention to the substantialities of the banquet, the intellectual feast began with the welcoming address of Hon. Francis B. Hayes, President of the Massachusetts Horticultural Society.

Address of Hon. Francis B. Hayes.

Ladies and Gentlemen: — The Massachusetts Horticultural Society extends to you all its cordial greetings. Whether you have come from distant parts of this continent, or from the neighborhood; whether you fill high places of state, or hold other eminent positions, or occupy "the post of honor, the private station," all are most heartily welcomed to this board. We come here after work has been done, to refresh ourselves in each other's society, to rejoice together that we are the recipients of the rich gifts of bountiful nature, and to honor those who have done so much in developing its resources for our comfort and happiness. It is most pleasant to see so many of the fair sex gracing these tables. Man can always be sure that his objects are worthy and elevated when woman is interested in them and manifests her approval of them as she does now by her presence. The refining influence of devotion to the cultivation of fruits and flowers is universally admitted. Home is made delightful by their presence, and when they are absent, a lower state of intelligence and refinement is immediately noticed. High and ennobling aspirations belong to the lover and diligent student of nature, which accompany him as guardian angels in this life, attend him to its close, and fit him better for entrance into the land of purity and bliss.

We are highly gratified to welcome here the venerable president,

and so many of the members of the American Pomological Society, our distinguished guests, in honor of whom we are assembled. You have come to us, Mr. President and gentlemen, bringing your fruits with you; not merely the choice and rich display we have seen upon your tables, but the grand results of your associated intelligence, your labors, your long and varied experience, teaching us what are the best fruits, their true names, their quality and adaptability for growth in the various parts of the territory occupied by your Society, wherein almost all the fruits of the different zones can be raised. No narrow State or national lines limit your benign influences. Abroad, as well as at home, you are known as the first of the great national pomological societies of the world, and your investigations, studies, and practical experience enlighten, improve, and bless mankind.

Mr. President, it affords me and my associates, great pleasure to bear witness that though the snows of more than fourscore winters have fallen upon your head, yet you, the chief of America's pomologists, are constantly, diligently, and enthusiastically at work in promoting the praiseworthy objects of your society. Though for almost two generations of men, you have been known in this community as one of Boston's most prominent merchants—and are now, it is believed, the oldest one—and though you have held, with honor, high offices of dignity and trust, both of public and private character, yet, the love of nature possessing your soul, your peculiar mission seems to have been, by your example and teachings, and by the use of the gifts of Providence, to give dignity to the occupation of the tiller of the soil, and elevate to the highest consideration the science and art of horticulture and agriculture. Recognizing, ladies and gentlemen, the eminent services of the venerable president in the foundation, establishment, and progress of the association, of which he was the first president and its head for more than thirty years, and at the same time gratefully remembering all, whether present or absent, who have worked successfully in the same field with him during that period, allow me to propose this sentiment:

"The American Pomological Society: All honor to it for the invaluable benefits it has conferred upon mankind! May its benign influences be extended to and bless the remotest generations!"

Response of Hon. Marshall P. Wilder.

Hon. Marshall P. Wilder, the President of the American Pomological Society, responded as follows:

Mr. President:—It is a singular and pleasant coincidence that has brought us together, here at our own homes, in the exchange of official courtesies. You have the honor to preside over one of the oldest and most prosperous horticultural societies of our country, while I have the privilege of responding for one more extensive, which embraces in its organization not only the Union, but our entire continent. But the objects of our institutions are much alike—the promotion of an art which combines in its results the most perfect union of the useful and beautiful the world has ever known.

Most sincerely do I thank you, Mr. President, for your kind appreciation of my poor labors. You do me no more than justice when you call me a friend of rural art, for I cannot remember the time when I did not love the cultivation of the soil.

But, Mr. President, there is no merit in these. They are the instincts of my nature, and I have been prosecuting them under the conviction that I could do nothing better for mankind; and could my life be prolonged for another fourscore and three years, I would devote them all to the promotion of this most delightful and benevolent pursuit. In behalf of the American Pomological Society, I thank you for the hospitalities and courtesies that have been extended to us this week.

We are happy to be here again in the good old Commonwealth of Massachusetts, so renowned for the interesting memorial associations to which you most happily alluded in your eloquent welcome speech on the opening of our convention, the home of free schools, free churches, and may I not say, free speech; here, within the limits of this goodly city, where yonder monument rears its head in commemoration of those who fell in defence of American independence and human rights; the Old Cradle of Liberty, which still rocks to the songs of patriotism and freedom; the Old South, from whence sallied forth that noble band which converted Boston harbor into a monstrous teapot, the history and spirit of which have been wafted by its waters throughout the civilized globe; and here at the home of the Massachusetts Horticultural Society, over which you so gracefully preside. The Massachusetts Horticultural Society has been a great leader in pomological science. She has

been the mother of numerous other societies, among which you have properly counted our own, for it was by her authority that I was empowered to issue the circular which assembled the National Convention of Fruit Growers in New York that organized the American Pomological Society, and nobly has she sustained our institution to the present day.

With the close of these ceremonies the American Pomological Society will have completed thirty-three years of its existence. It was the first national society for the promotion of pomology of which we have any account in history. But it is more than national; it is American, and embraces the provinces of British America on the north. It has vice-presidents and fruit committees in more than fifty States, territories, and districts, through whom we receive reports of the fruits adapted to their various locations; and wherever the pioneer and emigrant take up their homes we seek to find out what fruits prosper there. It has held its sessions in the various great cities of our country, and now, for the fourth time, it comes to receive the hospitalities of the Massachusetts Horticultural Society.

Mr. President, we live in an age of remarkable activity and enterprise, and in nothing is this more to be seen than in the progress of fruit culture during the present century. Many of us can remember the time when the only strawberry in our markets was the wild strawberry of the fields. Now I have on my register the names of more than four hundred kinds which have been under cultivation in my own day; and so great has been the increase in quantity that Norfolk, Va., has sent to the Boston market the last summer over six thousand bushels in one day, and a little town in our own vicinity has sent ten thousand bushels the present year. Fifty years ago there were no hardy grapes in our market except a few Isabellas, Catawbas, and the wild varieties; now we have under cultivation more than two hundred kinds, and California alone can produce not only enough to supply the country, but she ships entire cargoes of wine to Europe to be manipulated and muddled over, and sent back to us for consumption. The same increase may be noticed in the production of the peach, millions upon millions of bushels being sent to our various markets; and so extensive has been the export of apples that Boston alone has sent to Europe and elsewhere the last year more than six hundred thousand barrels.

But I must bring these remarks to a close. Suffice it to say that when I reflect on what has been accomplished since the American Pomological Society was established, the vast territory which is yet to be occupied with the culture of fruits, their importance as an article of food, and as one of the great sources of national revenue, I pray that my life may be prolonged for a few years to see more of the great future of pomology on this continent, when all of its fruit lands shall have been opened up for cultivation; when the Northern Pacific Railroad shall have connected us with Oregon, Washington, Puget Sound, Sitka, and southern Alaska, with climates in many places milder than in New England; when the Southern Pacific road, penetrating the rich lands in Mexico, Arizona and the valleys of the Rio Grande and El Paso, already renowned for their wild fruits and grapes—when these, together with Texas, larger than all New England and the Middle States—and those of our vast interior and the immense resources of the Pacific slope, are all brought into cultivation—and all this is to come. Then will our country possess the most productive and remarkable fruit belt the world has ever known; as distinguished for the excellence and abundance of its productions as it now is for its free institutions, prosperity, and power.

Mr. President, I cannot take my seat without thanking you again for the honor you have conferred on our society, for the brilliant assembly with which you have surrounded us, for these magnificent plants, luscious fruits, and lovely flowers, and, better than all, for the presence of woman, which adds grace, beauty, and interest to the scene.

President Hayes then announced the second regular sentiment as follows:

"The Commonwealth of Massachusetts; distinguished for promoting the cultivation of the soil as well as the culture of the mind. Our fathers planted the tree of liberty, and their children gather the rich fruits in peace and prosperity."

Response of Governor Long.

The Governor said that inasmuch as it was without previous notice that he was called upon to speak, his friends who were gathered would be spared any but the briefest remarks. He could not fail to take advantage of the opportunity to thank

the society, which, during the past fifty years, has been one of the educators not only of this Commonwealth but of the whole country; nor could he fail to pay the sympathetic regard of all to the Nestor among the chiefs of horticulture, who represents the fathers that planted the tree and the children who gather the fruit, and who enjoys the distinction of being at once the oldest and the youngest man in Massachusetts. He desired also, in behalf of the Commonwealth, to welcome so many representatives of other States and Territories, who had come here for the common good, and who are engaged not only in the interests of pomology but in securing the common ties which make our States members of one domain. The culture of the soil goes hand in hand with the culture of the mind. Go out among the hills, visit the large rural populations, and you will find, as in the cities, fair after fair exhibiting marks of increasing progress. The exhibit which the society is making in a neighboring hall is only an indication of the work of culture that is going on in the whole community. The cultivation of the soil is no longer living on the bounty of the earth; it is finding out the secrets that lie within, and securing the rewards which she offers to devoted labor and skill. Nothing is more suggestive in these days than the increase in production, not only for the benefit of the rich, but for the poor, and with all this increase the individual's condition is improved, so that he enjoys a higher life and greater possession in all the arts of living. It is teaching the true theology, the true patriotism, the true loyalty, by which each man works for the common good by devoting himself to his special pursuit. He who invents a contrivance, or brings forth a new variety of fruit, is laying the foundation for the greater comfort of his fellow-men hereafter. The Governor concluded by expressing the pleasure which it gave him personally to greet the members of the Pomological Society.

After more music, President Hayes announced the next sentiment as follows:

"The President of the United States—The sympathy of the Massachusetts Horticultural Society and its guests, the American Pomological Society, assembled in Boston, is extended to our beloved President and his family in their affliction, with the hope and prayer that his valuable life may be preserved to bless the nation."

Remarks by Collector Beard.

Hon. A. W. Beard was called on as the representative of the National Government. He observed that eleven weeks ago the heart of the nation stood still on hearing the news that came from Washington. For eleven weeks we have listened to the click of the telegraph wire, to hear the news of life or death. The strain upon the sympathies of the nation has had no parallel since the war. We have seen a terrible thing, that this man, in the prime of his life and powers, should be stricken by an assassin. We have sought the only thought of relief—that the nation can survive whether the President live or die ; but this has not stilled our anxiety. The President still waits patiently ; let us emulate his patience. The calamity was a terrible one, and yet there has been a silver lining to the cloud ; for the hearts of all throughout the land have been united in sympathy, and, whatever the result, the nation will be the better for it. With our hearts aroused as for a dear father or brother, let us rely on Him who doeth all things well.

Other Speeches.

The following sentiment was then proposed :

"The City of Boston — Prominent in history from its early struggles in the cause of freedom ; her free schools, free churches, and benevolent institutions have borne abundant harvests of rich fruits in which the people rejoice."

In the absence of Mayor Prince, who sent a pleasant letter, Alderman C. H. B. Breck responded, as follows :

Mr. President, Ladies, and Gentlemen : In the unexpected absence of His Honor the Mayor, and representing the City Government, I take great pleasure in replying to the sentiment you propose, and greet with a warm and hearty welcome the members of the American Pomological Society, who represent every State of the Union and the Dominion of Canada.

The City of Boston is always ready to welcome every association devoted to the general good, but when gentlemen of your profession, whose object is the propagation and cultivation of good fruits, and the rejection of bad ones, come together here, it deems you worthy of its highest regards. Our citizens are deeply interested in the various kinds of fruits ; not so much in their cultivation as in being able to obtain them cheaply, so that the poor as well as the rich may buy and eat. We find them pretty plenty gener-

ally, but I am sorry to say they are sold at such high prices that it takes a well filled purse to buy these life-preserving gifts of nature.

I regret that we have no orchard or vineyard to show you, but we have a public garden tastefully laid out, with beautiful walks, and bordered with rare plants and shrubs, with flowers of every hue; the perfect taste and order displayed in this place which may almost be called a second garden of Eden, are a source of pride to the heart of every Bostonian, and I trust you will find time to visit this lovely spot with its beautiful surroundings.

Hoping that your stay will continue to afford you the greatest pleasure while in the city, I again assure you of the best wishes of our citizens.

The next sentiment was as follows:

"The British Colonies in North America: Bound to this Republic by common interests, brought nearer and nearer by social intercourse, and fastened by the golden links of commerce. May their friendly relations with the United States never be interrupted."

Rev. Robert Burnet, D.D., of Nova Scotia, was expected to respond, but he had returned home.

The following sentiment was next offered:

"The Pomology of the South—From her generous and genial clime we of the North receive the delicious products of her soil while 'winter lingers in the lap of spring.' The enterprise and skill of her cultivators deserve our warmest acknowledgments for greatly prolonging to us the seasons of fruits."

Judge Whitehead, of Norfolk, Va., not appearing to respond to this sentiment, as had been arranged, three cheers where given for Old Virginia.

The next toast was

"The Pomology of the West—The granaries, orchards, and vineyards of the territorial domain of the United States, vast in extent, abundant in resources, are treasure houses upon which the world may draw for their supplies."

Colonel N. J. Colman, of Missouri, responded. He felt he should be doing injustice to the West if he did not say that every man and woman in the West felt gratitude to Boston for this welcome. It is true that the West has not had a Wilder, a Barry, a Walker, a Manning, and such eminent pomologists, but it can boast of a Warder, a Longworth, a Kirtland, a Flagg. The

speaker alluded to the practical work which is now done in the West, making the study of pomology a part of the education of the young. The West loves the Hon. Marshall P. Wilder as a dutiful son loves his parent. The Mississippi Valley Horticultural Society, which is to meet at Chicago, will show what the great West is capable of doing.

Hon. Isidor Bush, of Missouri, presented a greeting from the Nestor of fruit-growers in the West, Hon. Fred Müench, who sent a bunch of grapes to President Wilder.

The next sentiment read was

"The Pomology of the North: Despite her cold and uncongenial climate, her rough and rocky soil, she produces fruits which rival in excellence those of the most favored climes."

Charles M. Hovey, Ex-Vice President for Massachusetts, responded in a pleasant manner, and said, in speaking for the North, that we feel delighted to give greeting to our friends from all sections interested in this great subject of pomology. We have gained so much through this society that we are not obliged individually to test all the fruits, but can learn by the experience and teaching of this organization. He alluded to the fruits which the North has contributed to the country as durable and valuable accessions to the resources of the people.

The next sentiment read as follows:

"The Pomology of the East: The pioneer in the progress of American civilization, scattering its fruits like manna from the skies all over our land."

Response by Samuel B. Parsons, of New York.

The next sentiment was

"The United States Agricultural Society: The uniform friend of American Agriculture; the annals of her history attest the value of her former labors. May she never lack the sunshine of patronage; may she reap an abundant harvest of renown."

Responded to by Ex-Governor Frederick Smyth, of New Hampshire, who referred in an affectionate manner to his various relations, public and private, with Col. Wilder, and to the interest which he felt in the cause of American Pomology.

Major Ben: Perley Poore, Secretary of the United States Agricultural Society, was then called for and responded in his usual pleasant vein.

Then came this sentiment:

"The New York Horticultural Society: Her fruit resources are ample. May the development of them be compared with the motto of her State, 'Excelsior.' Glad are we that she is so well carrying out the designs of her founders."

Response by Rev. E. P. Roe.

He said that the influence of the Horticultural Society in Boston had done much to tone up the Pomological Society. Men are giving to pomology what is more to be valued than their wealth, namely, their influence, their brain, and personal effort. The speaker paid New England the honor of having not only improved the science of the soil but of having brought forth in abundance the best of all products, true and honorable men. He also alluded to the valuable services rendered to Pomology by his friend, Charles Downing.

The following sentiment was proposed:

"The Pennsylvania Horticultural Society: The first permanent horticultural society established on our continent. Worthily has she executed her mission as a pioneer. Massachusetts was bound to follow in the footsteps of so illustrious a leader."

The pertinent response of W. L. Schaffer, President of the Pennsylvania Horticultural Society, was read by A. W. Harrison, Secretary, Mr. Schaffer having been obliged to leave.

Then followed this sentiment:

"The New England Agricultural Society: Her vigorous and intelligent labors have contributed largely to the prosperity of the country. Gratified that its President has been placed at the head of the Agricultural Bureau of the nation, we are confident that the usefulness of the Society will continually increase while its able President and Secretary conduct its affairs."

Hon. George B. Loring, United States Commissioner of Agriculture, and President of the Society, and Hon. Daniel Needham, Secretary, being absent, no response was made.

The company then rose and sang, to the tune of "Auld Lang Syne," the following

HYMN,

WRITTEN FOR THE OCCASION BY JOHN G. WHITTIER.

O Painter of the fruits and flowers,
We own Thy wise design,
Whereby these human hands of ours
May share the work of Thine!

Apart from Thee we plant in vain
The root and sow the seed;
Thy early and Thy later rain,
Thy sun and dew we need.

Our toil is sweet with thankfulness,
Our burden is our boon;
The curse of Earth's gray morning is
The blessing of its noon.

Why search the wide world everywhere
For Eden's unknown ground?—
That garden of the primal pair
May never more be found.

But, blest by Thee, our patient toil
May right the ancient wrong,
And give to every clime and soil
The beauty lost so long.

Our homestead flowers and fruited trees,
May Eden's orchard shame;
We taste the tempting sweets of these
Like Eve, without her blame.

And North and South and East and West,
The pride of every zone,
The fairest, rarest, and the best
May all be made our own.

Its earliest shrines the young world sought
In hill-groves and in bowers;
The fittest offerings thither brought
Were Thy own fruits and flowers.

And still with reverent hands we cull
Thy gifts each year renewed;
The good is always beautiful—
The beautiful is good.

Then came the last sentiment of the evening:

"Michigan: In the magnificent exhibition which she has made to us, we witness a bountiful harvest of good fruits raised on good soil. We rejoice in the growth and prosperity of the State."

Response of the Hon. W. K. Gibson:

"*Mr. President:* I appreciate the honor of being called on to respond to a sentiment so complimentary to the State to which I belong.

The display which you have deemed worthy of special notice, is inferior in appearance and quality to that we are usually able to make in more favorable seasons.

Mr. President, we do not feel as though we were strangers here. Among its early pioneers Michigan numbered many from New England, and there has entered into our growth as a State much of the sturdiness and integrity of character and somewhat of the culture characteristic of New England life.

The motto of our State is *Si quæris peninsulam amœnam circumspice*, and, sir, if you seek for a beautiful peninsula, look upon her as she lies almost surrounded by the waters of the northern lakes. Every variety of soil, every diversity of climate are hers. In the southern portion are patches of prairie, with hills and valleys, and rivers and lakes, while at the north the waters of Lake Superior break against a coast as rocky and wild as that of New England. Of the fertility of her soil, and its adaptation to the raising of all kinds of fruit, you have evidence before you today. Within her borders also are vast forests of pine and hard woods, scarcely equalled in variety by any State in the Union.

From these forests, sir, within the past few days has gone up, as from a fiery furnace, a cry of suffering from destitute, homeless thousands, which has touched the heart of the East as well as the West, and which has met with a generous response in this city.

Mr. President, it seems to me that the heart of the whole nation has grown very tender within the past few months. That bed of pain and suffering, upon which the President has lain for so many weary days, watched over by a loving and heroic wife, has done more to awaken generous sympathy, and bind together the different sections of the country, than all the reconstruction acts ever passed by Congress. There can be no enmity in our hearts towards those whose fervent prayers have mingled with our own for the President's recovery. And to Boston, sir, whose heart is ever tender and responsive to suffering, let me express the thanks and gratitude of our whole State for the generous donations you are sending to relieve those made destitute by the recent forest fires.

Mr. President of the Massachusetts State Horticultural Society, allow me to say that this banquet is something more than a mere feast of good things. In this you have crowned and dignified what has preceded it. It comes naturally as a part of what we

call the eternal fitness of things. For three days, sir, you have shown us the noblest fruits and fairest flowers of your soil, and to night, here in this room, we have had the pleasure of meeting the noblest fruits and fairest flowers of your intellectual culture.

One speaker has said this evening, quoting from Emerson, that much of truth goes floating about the world in popular proverbs. Doubtless this is true, and there is an old saying that every New Englander when he dies expects to go to—Boston. Now if this be true, and it probably is, let me express the wish that such soul may go by the way of Michigan, and, thus escaping purgatory, reach here through paradise.

President Hayes, in making the closing remarks, expressed the gratification felt by the Massachusetts Horticultural Society in having for its guests this evening so many distinguished in the science and art of horticulture, and wishing all a safe and pleasant return to their homes, he asked them to unite in singing America, which was done with enthusiasm, and then the meeting was dissolved.

REPORT

OF THE

COMMITTEE ON PUBLICATION AND DISCUSSION,

FOR THE YEAR 1881.

The discussions of the past winter and spring, published in Part I of the Transactions for 1881, make unnecessary any extended report. The labor of your Committee has been greatly lessened by the accurate and admirable digest of the discussions by the Secretary, and the Society is largely indebted to him for the supervision of all our printed reports.

Horticulture in its present development is not one of the exact sciences; hence the importance and usefulness of discussion. With a horticultural temple, the finest in the world, and a library well known as containing the best collection of horticultural books in America, and, undoubtedly, with as large a membership of educated and skilled cultivators as exists in the country, our opportunities are great, and the results of our discussions and investigations are expected to be of corresponding value. Much as they have done for us already, they are capable of doing far more.

Ex-President Parkman, in his valedictory address, well said, "With us, as with all horticultural or agricultural clubs or societies, discussion is subject to the same evil. It is apt to go round with the same persons in the same groove, keeping all the time at about the same level of intelligence and knowledge, and so fail to gain its real object, which is to develop those habits of investigation and reflection, without which the horticulturist can never be master of his craft. If members would more generally share in them, preparing themselves beforehand to do so by recalling what their own experience may have taught them about the subject announced, and then, by means of books and journals, comparing

their own results with those recorded by others, our discussions would become a powerful means of stimulating observation and thought." The Committee have endeavored to avoid the danger here pointed out, but, in order that the discussions should reach the standard in the minds of the Committee, and attain their highest usefulness, the coöperation of the members of the Society will be necessary, and the Committee trust that each will be prepared to do his best in adding to the interest of the meetings.

The report of the Treasurer for 1880 acknowledged the receipt of $500, for sales of the History of the Society; since then copies have been sold to the amount of nearly three hundred dollars. Your Committee would again call the attention of members who have not already obtained a copy, to the importance of doing so without delay, as the number on hand is limited.

A prize of twenty-five dollars has been awarded to Mrs. T. L. Nelson, of Worcester, for an essay upon "Our Native Plants adapted for Winter Culture for their Flowers." Several other essays competing for prizes were received, which, after careful consideration your Committee felt obliged to reject.

Respectfully submitted by

BENJAMIN G. SMITH,
JOHN B. MOORE,
E. LEWIS STURTEVANT,
Committee on Publication and Discussion.

REPORT

OF THE

LIBRARY COMMITTEE,

FOR THE YEAR 1881.

The Committee on the Library submit the following report:

The Society's appropriation and the income derived from the Stickney Fund have been expended in the same manner as in former years. The list of periodicals taken has been nearly the same as heretofore; the most important changes in the coming year will be that the Farmer's Magazine, a work very valuable for many reasons, will be omitted, being no longer published, and that the American Naturalist, which was dropped some time ago for lack of funds, and has been asked for by several members, will be again taken.

Among the books added to the Library from the Stickney Fund —which, in number and value, will compare not unfavorably with the additions made in previous years,—the following are worthy of special notice: the splendid Monograph of the Genus Lilium, by Mr. Elwes, the last three parts of which have recently been received; the Arboretum Segrezianium; Verschaffelt's Iconography of the Camellia; Watson's Dendrologia Britannica; Kotschy's Monograph of the European and Oriental Oaks; Boissier's fine illustrations of the Flora of Spain; Hoola Van Nooten's Flowers, Fruits, and Foliage of Java; Hallier's Deutschlands Flora; Dodel-Port's Anatomical and Physiological Atlas of Botany; Zippel and Bollmann's Auslandische Culturpflanzen; Cesati, Passerini, and Gibelli's Flora Italiana; Schlectendal, Langethal, and Schenk's Flora von Deutschland; Emmons's Agriculture of New York, and the Orchid Album, the last a magnificent work appearing at stated intervals, conducted by Robert Warner and B. S. Williams, and designed to give colored plates of new orchids

and new varieties of old ones, with cultural notes. From a purely horticultural point of view, this publication seems likely to be second in value to none.

In the first part of the year a fresh attempt was made to supply our table with nurserymen's and seedmen's catalogues. A circular prepared by the Secretary of this Committee was sent to all the leading dealers asking that their lists might be sent to this library from time to time, and setting forth the advantage to themselves likely to result from their compliance. The response to this circular has been very satisfactory; we have received the catalogues of one hundred and sixty-one dealers from all parts of the United States, and from England, Ireland, Scotland, France, Italy, Germany, Holland, Belgium, and Switzerland. Many of these catalogues are very elaborate, and valuable both horticulturally and botanically. It is the intention of the Committee that these shall be taken out as other books are, and that they shall be charged on the Librarian's book. Two of the most valuable, H. Cannell & Sons' and D. M. Ferry & Co.'s, are missing, having been taken by some person who omitted to have them charged; it is requested that those who have them report the fact to the Librarian.

We must again call the attention of the Society to the need of a card catalogue of our colored plates. We have no index to these, except the work of Pritzel; if this Society were dead, or if it had made no growth since the date of that publication, nothing more would be needed; but this is a body alive in all its parts; its library is expending a large sum annually, and must spend or forfeit it. How many plates we have received of which we have no index, we cannot say, but believe that they might be numbered by thousands. The present time is without parallel in horticultural advance and botanical research; exploring parties sent out by governments and societies are bringing back new vegetable treasures month by month; the great horticultural establishments of Europe have their own private travellers in all parts of the world, and new varieties are constantly coming into existence by the art of the hybridizer. The prospect, therefore, is that for a long time to come there will be subjects in abundance for the draughtman's skill. Most of these plates will come to this library in course of time, but if no index to all these exists, their value is half lost to us. The cost of such a card catalogue need not be very great; there would be no need of botanical verification of every plate; a simple list of

them with the names under which they were issued and the place where they are to be found is all that is needed. Even if one series of books only were taken to begin with, it would be something.

Every frequenter of this library room must appreciate the vast improvement which has been brought about. The rooms are as elegant as could be desired, and the alterations which allow the superintendent's business and ticket-seller's operations to be carried on without encroaching upon this apartment, ought to afford great gratification to the Society as they do to this Committee. We need no longer dread the possible depredations of the army of hangers-on who accompany the lessees of the halls, and those who desire to put these rooms to their legitimate use can now do so without interruption.

For the Committee,

W. E. Endicott, *Chairman.*

LIBRARY ACCESSIONS.

Books Purchased.

Verschaffelt, Alexandre. Nouvelle Iconographie des Camellias, contenant les Figures et la Description des plus rares, des plus nouvelles, et des plus belles varieties de ce Genre. 12 vols. bound in 7. 8vo. Gand: 1848–1860.

Clarke, C. B., late acting Superintendent of the Calcutta Botanic Garden. Commelynaceæ et Cyrtandraceæ Bengalenses. (Paucis aliis ex terris adjacentibus additis.) Folio. 93 pl. Calcutta, Bombay, and London: 1874.

Elwes, Henry John, F. L. S., F. R. S. A Monograph of the Genus Lilium. Nos. 5, 6, and 7, completing the work. Folio. 17 colored plates. London: 1830.

Warner, Robert, and B. S. Williams. The Orchid Album, comprising Colored Figures and Descriptions of New, Rare, and Beautiful Orchidaceous Plants. Vol. 1, Parts 1–4. 4to. 16 colored plates. London: 1881.

Lindley, Professor, F. R. S. A List of the Orchidaceous Plants collected in the East of Cuba, by Mr. C. Wright, with characters of the new species. 8vo. pamphlet. 1858.

——— ———. Contributions to the Orchidology of India. No. 2. 8vo. pamphlet. 1858.

Gérard, R. La Fleur et le Diagramme des Orchidées. 4to. pamphlet. Paris: 1879.

Parnell, Richard, M. D., F. R. S. E. The Grasses of Scotland, illustrated by figures drawn and engraved by the Author. 8vo. 66 plates. Edinburgh, and London: 1842.

Baker, J. G., on the English Mints, and Berthold Seemann, Ph.D., on Faradaya, a new Australian Genus, and on Plants producing Double Flowers. 8vo. pamphlet. [From the Journal of Botany.]

Flora Danica. Fasciculus 50. Folio. Plates 2941–3000. Copenhagen: 1880.

Hallier, Dr. Ernst. Deutschlands Flora. 9th edition. 4 vols. Royal 8vo. 500 colored plates. Dresden: 1881.

Schlectendal, Dr. D. F. L. von, Dr. L. E. Langethal, und Dr. Ernst Schenk. Flora von Deutschland. Fünfte auflage, von Dr. Ernst Hallier. Lieferungen 1–47. Small 8vo. Many colored plates. Gera-Untermhaus: 1880, 1881.

Bertram, W. Flora von Braunschweig, etc. Small 8vo. Braunschweig: 1881.

Graf, F. Die Alpenpflanzen. Hefte 22–34. 16mo. 117 colored plates. Prague: 1881.

Cesati, V., G. Passerini, and E. G. Gibelli. Compendio della Flora Italiana. Fasciculi 1–27. Royal 8vo. 81 plates. Milan, Palermo, and Rome: 1878–1881.

Lojacano, M. Contributi alla Flora di Sicilia. 8vo. pamphlet. Palermo: 1878.

Barrelier, Jacobo. Plantæ per Galliam, Hispaniam, et Italiam, etc. Folio. 334 plates. Paris: 1714.

Boissier, Edmond. Voyage Botanique dans le Midi de l'Espagne, pendant l'annee, 1837. 2 vols. 4to. 206 colored plates. Paris: 1839–1845.

Willkomm, Mauritio, et Joanni Lange. Prodromus Floræ Hispanicæ, etc. 3 vols. 8vo. Stuttgart: 1861–1880.

Marès, le Dr. Paul, et Guillaume Vigineix. Catalogue Raisonné des Plantes Vasculaires des Iles Baléares. 8vo. 10 pl. Paris: 1880.

Barcelo y Combio, D. Francisco. Flora de las Islas Baleares, etc. 8vo. Palma: 1879–1881.

Lemoine, Victor. Atlas des Caractères Specifiques des Plantes de la Flore Parisienne et de la Flore Rémoise. Livraison 3, in continuation. 8vo. 10 plates. Paris and Reims, 1881.

Sauzé, J.-C., et P. N. Maillard. Flore du Département des Deux-Sèvres. 3 vols. 12mo. Niort: 1872–1880.

Liégard, A. Flore de Bretagne. Small 8vo. Paris: 1879.

Ardoino, Honoré. Flore Analytique du Département des Alpes-Maritimes. 2d edition. 12mo. Menton and Nice: 1879.

Johnson, Thomas. Descriptio Itineris Plantarum Investigationis ergo Suscepti, in Agrum Cantiarum Anno Dom. 1632, etc., Nup. edit. T. S. Ralph. Small 4to. London: 1849.

Pierre, L., Directeur du Jardin Botanique de Saïgon. Flore Forestière de la Cochinchine. Publié sous les auspices du Ministère de la Marine et des Colonies. Fasciculi 1–3. Large folio. 48 plates. Paris. [Still publishing.]

Kurz, S., Curator of the Herbarium, Royal Botanic Gardens, Calcutta. Forest Flora of British Burma. Published by order of the Government of India. 2 vols. 8vo. Calcutta: 1877.

Burmann, Nicolaus Laurens. Flora Indica cui accedit series Zoophytorum Indicorum nec non Prodromus Floræ Capensis. Small 4to. 67 plates. Leyden: 1768.

Hoola Van Nooten, Madame Berthe. Fleurs, Fruits, et Feuillages choisis de l' Ile de Java. 3d edition. Folio. 40 colored plates. Brussels: 1880.

Gregg, W. H. A Text Book of Indian Botany, Morphological, Physiological, and Systematic. Parts 1 and 2. 12mo. 165 wood-cuts. Calcutta: 1881.

Regel, E. Flora of Toorkestan. Vol. 3, Part I, Primulaceæ and Liliaceæ. 4to. 22 plates, part colored. 1876.

Aitchison, J. E. T., F. L. S., on the Flora of the Kuram Valley, Afghanistan, and C. B. Clarke, on Indian Begonias. 3 plates. [From the Journal of the Linnean Society.] 8vo. 1879, 1880.

Czerniavşky, W. Periodical Appearances in the Life of Plants in Late Autumn, Winter, and Spring, in Sookhoom, Transcaucasia. [Russian.] 8vo. pamphlet. Tiflis: 1879.

Zeller, Mrs. Hannah. Wild Flowers of the Holy Land. Small 4to. 54 colored plates. London: 1880.

Mathews, William, M.A. The Flora of Algeria, considered in relation to the Physical History of the Mediterranean Region and Supposed Submergence of the Sahara. 8vo. Map. London: 1880.

Willis, Oliver R., Ph.D. Catalogue of Plants growing without cultivation in the State of New Jersey, with specific descriptions of all the Violets found there, directions for collectors, teachers, and students, and a Directory of Botanists. Revised and enlarged edition. 8vo. New York, Chicago, and New Orleans: no date.

Hemsley, W. B. Biologia Centrali-Americana; Botany. Parts 1–9. 4to. 50 plates. London: 1879–1881.

Hughes, The Reverend Mr. Griffith, A.M. The Natural History of Barbados. Folio. 29 plates. London: 1750.

Polakowsky, H. Die Pflanzenwelt von Costa Rica, etc. 8vo. Dresden: 1879. [XVI. Jahresbericht des Vereins für Erdkunde, zu Dresden, pp. 25–124.]

Rodrigues, J. Barbosa. Enumeratio Palmarum Novarum quas Valle Fluminis Amazonum. 8vo. pamphlet. Sebastianopolis: 1875.

Wallace, Alfred Russel. Palm Trees of the Amazon and their uses. 12 mo. 48 plates. London: 1853.

Link, H. F., Fr. Klotsch, and F. Otto. Icones Plantarum Rariorum Horti Regii Berolinensis. 4to. 2 vols. in 1. 48 colored plates. Berlin: 1841–1844.

Pfitzer, Dr. Ernst. Der Botanische Garten der Universität Heidelberg. Ein Führer für dessen Besucher. 8vo. Heidelberg: 1880.

Todaro, Augustino. Hortus Botanicus Panormitanus, etc. Vol. 1. Folio. 24 colored plates. Palermo: 1876–1878.

Lavallée, Alphonse. Icones Selectæ Arborum et Fruticum in Hortis Segrezianis collectorum. Livraisons 2 and 3 in continuation. Folio. 12 plates. Paris, London, and Madrid: 1881.

Dodel-Port, Dr. Arnold and Caroline. Anatomical and Physiological Atlas of Botany. Parts 1–3. 18 large folio plates, with 12mo. Handbook to each part. Translated and edited by D. McAlpine, F. C. S. Esslingen, Edinburgh, and London: 1880.

Messer, Frederick A. A New and Easy Method of Studying British Wild Flowers by Natural Analysis, etc. 8vo. London: 1880.

Bailey, W. Whitman, B. P. The Botanical Collector's Handbook. Small 8vo. 30 wood-cuts. Salem: 1881. [Naturalist's Handy Series, No. 3.]

Wood, Alphonso, A. M., and J. Dorman Steele, Ph. D. Fourteen Weeks in Botany. Small 8vo. New York, Chicago, and New Orleans: no date.

——— ——. The American Botanist and Florist. 8vo., 524 wood-cuts. New York, Chicago, and Troy: no date.

Plant-Life. Popular Papers on the Phenomena of Botany. Small 8vo. 148 wood-cuts. London: 1881.

Henderson, Peter. Handbook of Plants. Large 8vo. New York: 1881.

Moore, Thomas, F. L. S., F. R. H. S., Curator of the Botanic Garden, Chelsea. Epitome of Gardening, with an introductory chapter on the Principles of Horticulture, by Maxwell T. Masters, M. D., F. R. S. Small 8vo. 207 wood-cuts. Edinburgh: 1881.

Moore, Thomas, F. B. S., and William P. Ayres, C. M. H. S. The Gardener's Magazine of Botany, Horticulture, Floriculture, and Natural Science. 3 vols., small 4to. Colored plates and wood-cuts. London: 1850, 1851.

Des Cars, A. A Treatise on Pruning Forest and Ornamental Trees. Translated from the seventh French edition, with an Introduction, by Charles S. Sargent, Professor of Horticulture in Harvard College. Small 8vo. Plate and 53 wood-cuts. Boston: 1881. [Publications of the Massachusetts Society for the Promotion of Agriculture.]

Wood, Samuel. The Forcing Garden; or, How to Grow Early Fruits, Flowers, Vegetables, etc. Small 8vo. 35 wood-cuts. London: 1881.

Quin, Charles W. Garden Receipts. Small 8vo. London: 1877.

Foster, Mrs. J. Francis. On the Art of Gardening: A Plea for English Gardens of the Future, with Practical Hints for Planting them. 12mo. pamphlet. London. 1881.

Hogg, Robert, L.L. D., F. L. S., Editor. The Herefordshire Pomona, containing colored figures and descriptions of the most esteemed kinds of Apples and Pears. Parts 2 and 3 in continuation. Folio. Colored plates and wood-cuts. London and Hereford: 1879, 1880.

Fish, D. T. The Hardy Fruit Book. Vol. 1, the Apple, Pear, Peach, and Nectarine. Small 8vo. Many wood-cuts. London: no date.

Lauche, W. Deutsche Pomologie. Leiferungen 25–46 in continuation. 8vo. Colored plates of fruits. Berlin: 1880. Erganzungsband; Handbuch des Obstbaues. Lieferungen 1–6. 8vo. Wood-cuts. Berlin: 1880–1881.

Dybdahl, J. A. Jordbær-og vore vigtigste Frugtbusker-arter, etc. 4 Hefte. 8vo. 2 colored plates. Copenhagen: 1879.

Clemente y Rubio, Don Simon de Rojas. Ensayo sobre las Variedades de la Vid Commun que vegetan en Andalucía. 28 colored plates. Memoria sobre el Cultivo de la Vid en Sanlucar de Barrameda y Xerez de la Frontera, per Don Esteban Boutelou. Idea de la Práctica Eonológica de Sanlucar de Barrameda ó del Método que allí se sigue en la Fabrication de los Vinos y algunas observaciones sobre la Destilacion de los Aguardientes. Folio. Madrid: 1879.

The Vineyard, etc., being the Observations made by a Gentleman in his Travels. Small 8vo. London: 1727.

Hooper, E. J. The Western Fruit Book. 12mo. Cincinnati: 1857.

Baker, Charles R. Practical and Scientific Fruit Culture. Large 12mo. Wood-cuts. Boston: 1866.

Rutter, John. The Culture and Diseases of the Peach; a Complete Treatise for the use of Peach Growers and Gardeners of Pennsylvania and all districts affected by the "Yellows" and other diseases of the tree. Small 8vo. Harrisburg: 1880.

Nietner, Th. Die Rose, ihre Geschichte, Arten, Kultur, und Verwendung nebst einem Verzeichniss von fünftausend beschreibenen Gartenrosen. 4to. 12 colored plates, 106 wood-cuts, and 2 garden plans. Berlin: 1880.

Berg, Dor. D. Cárlos. La Reina de las Flores. Conferencia Popular dada en la Asamblea General de la Sociedad Científica Argentina, el 4 de Mayo de 1880. 8vo. pamphlet. Buenos Aires: 1880.

Paul, William. Roses and Rose Culture. Fourth edition. 12mo. London: no date.

——— ——. Roses in Pots. Fifth edition, 12mo. Wood-cuts. London: no date.

——— ——. The Rose Annual, 1859–60, 60–61, 61–62. 3 pamphlets, 8vo. London: no date.

——— ——. Lecture on the Hyacinth, delivered by the request of the Council of the Royal Horticultural Society, April 5, 1864, at South Kensington. 12mo. pamphlet.

——— ——. An Hour with the Hollyhock. Second edition. 12mo. pamphlet. London: 1855.

Robinson, William. The Wild Garden, or our Groves and Gardens made beautiful by the Naturalization of Hardy Exotic Plants; being one way onwards from the Dark Ages of Flower Gardening, with suggestions for the Regeneration of the Bare Borders of our London Parks. New edition, illustrated by Alfred Parsons. 8vo. Many plates and wood-cuts. London and New York: 1881.

Halliday, Robert J. A Treatise on the Propagation and Cultivation of the Azalea Indica. 12mo. 34 wood-cuts. Baltimore: 1880.

Hibberd, Shirley. Greenhouse Favourites; a Description of Choice Greenhouse Plants, with Practical Directions for their Management and Cultivation. Small 4to. Colored plates and wood-cuts. London: 1881.

——— ———. Familiar Garden Flowers. First series. Small 8vo. 40 colored plates, by F. Edward Hulme. London, Paris, and New York: no date.

——— ———. The Garden Oracle and Illustrated Floricultural Year Book. 1881. 12mo. Wood-cuts. London.

Ilford, William Earley, Cond. The Villa Garden and Flower Show Manual, 1881–2, and Amateur's Year Book. 8vo. pamphlet. 60 wood-cuts. London.

Douglas, James, F. R. H. S. Hardy Florists' Flowers; their Cultivation and Management. Small 8vo. London: 1881.

Flowering Plants, with instructions how to cultivate them, etc. Square 12mo. 11 plates. London: no date. [Selected from Maund's Botanic Garden.]

Prior, W. D. Hardy Shrubs, with Descriptions of the most popular kinds, and Practical Directions for their culture and use. Small 8vo. Colored plates and wood-cuts. London and New York: 1881.

Switzer, Stephen. The Practical Kitchen Gardener, etc. Small 8vo. plans. London: 1727.

Iggulden, William. The Tomato, Cultural Directions, Varieties, and Receipts. Small 8vo. pamphlet. London: 1881.

Dennis, J., B. C. L. The Landscape Gardener, containing the History and Principles of Tasteful Horticulture. 8vo. Colored plate. London: 1835.

Elliott, F. R. Handbook of Practical Landscape Gardening, designed for City and Suburban Residences, and Country School-houses, containing designs for lots and grounds, etc. Second edition, enlarged and improved. 8vo. Plates and wood-cuts. Rochester: 1881.

Fawkes, F. A. Horticultural Buildings. Their Construction, Heating, Interior Fittings, etc., with remarks on some of the principles involved, and their application. Square 8vo. 123 wood-cuts. London: no date.

Emmons, Ebenezer, M. D. The Agriculture of New York. 4 vols. 4to. Many colored plates of Fruits, Insects, etc. Albany: 1843–1854.

American Agriculturist, Vol. 18. 4to. Many wood-cuts. New York: 1859. (Towards completing the set.)

Royal Agricultural Society of England. Journal, New Series, Vol. 17, 1881, Part 1. 8vo. London: 1881.

Lawes, J. B., LL D., F. R. S., F. C. S., and J. H. Gilbert, Ph. D., F. R. S., F. C. S., F. L. S. Agricultural, Botanical, and Chemical Experiments on the Mixed Herbage of Permanent Meadows, conducted for more than twenty years in succession on the same land. Part I.

4to. London: 1880. [From the Philosophical Transactions of the Royal Society.]

Denton, J. Bailey, M. Inst. C. E., F. G. S. The Farm Homesteads of England. A Collection of plans of English Homesteads existing in different parts of the country, carefully selected from the most approved specimens of Farm Architecture, etc. Large 4to. Many lithographs and wood-cuts. London: 1864.

Morton, John Chalmers. The Prince Consort's Farms: An Agricultural Memoir. 4to. Wood-cuts. London: 1863.

Hoskyns, Chandos Wren. Talpa: or the Chronicles of a Clay Farm. An Agricultural Fragment. Third edition. 16mo. London: 1854.

Steele, Andrew, Esq., of Crosswoodhill. The Natural and Agricultural History of Peat-Moss or Turf-Bog. 8vo. Edinburg, London, and Dublin: 1826.

Tusser, Thomas, Gent. Five Hundred Points of Good Husbandry, etc. Square 12mo. London: 1672.

Hartlib, Samuel. His Legacy of Husbandry, etc. Third edition. Square 16mo. London: 1655.

Olivera, Eduardo. Estudios y Viages Agricolas en Francia, Italia, Suiza, Alemania, Holanda, y Bélgica. 2 vols. 8vo. Buenos Ayres: 1879.

Falconer, H., M. D., F. R. S. Report on the Teak Forests of the Tenasserim Provinces. With other papers on the Teak Forests of India. [Selections from the Records of the Bengal Government.] 8vo. Maps and plate. Calcutta: 1852.

Pappe, L., M. D. Silva Capensis, or a Description of South African Trees and Shrubs, used for Technical and Economical Purposes by the Colonists of the Cape of Good Hope. 8vo. pamphlet. Cape Town and Leipzig: 1854.

Berthelot, Sabino. Arboles y Bosques. 12mo. Santa Cruz de Tenerife: 1880.

Kotschy, Dr. Theodor. Die Eichen Europa's und des Orient's. Folio. 40 colored plates. Text in Latin, German, and French. Vienna and Olmutz: 1862.

Krebs, F. L. Vollständige Beschreibung und Abbildung der Sämmtlichen Holzarten welche im Mittlern und Nördlichen Deutschland wild wachsen. Second edition. 4to. 145 colored plates. Brunswick: 1846.

Jäger, Hermann. Deutsche Bäume und Wälder. Populär-ästhetische Darstellungen aus der Natur und Naturgeschichte und Geographie der Baumwelt. 8vo. Plates and wood-cuts. Leipsic: 1877.

Broillard, Ch. Le Traitement des Bois en France, a l'Usage des Particuliers. 8vo. Paris: 1881.

Pla y Rave, D. Eugenio. Manual de Cultivo de Arboles Forestales. 16mo. Madrid: no date. [Biblioteca Enciclopédica Popular Illustrada.]

Watson, P. W., F. L. S. Dendrologia Britannica: or Trees or Shrubs that will live in the open air of Britain throughout the year. 2 vols. 8vo. 172 colored plates. London: 1825.

Loudon, J. C., F. L. S., H. S., etc. Trees and Shrubs, an Abridgement of the Arboretum et Fruticetum Britannicum. 8vo. 2,109 wood-cuts. London and New York: 1875.

Veitch, James & Sons. A Manual of the Coniferæ, containing a general review of the order, a synopsis of the hardy kinds cultivated in Great Britain, their place and use in Horticulture, etc. 8vo. Many wood-cuts. Chelsea, England: 1881.

Langley, Batty, of Twickenham. A Sure Method of Improving Estates by Plantations of Oak, Elm, Ash, Beech, and other Timber Trees, Coppice-woods, etc. Small 8vo. London: 1728.

Dupont, E. Les Essences Forestières du Japon. 8vo. Paris: 1879.

Zippel, Hermann, und Carl Bollmann. Ausländische Culturpflanzen in Farbigen Wandtafeln. 8vo. with 2 portfolios containing 23 large colored plates. Braunschweig: 1880.

Gross, Heinrich. Die Wichtigeren Handelpflanzen in Bild und Wort. Small folio, 36 colored plates. Esslingen: 1880.

Cazzuola, Ferdinando. Le Piante Utili e Nocive Agli Uomini e Agli Animali che crescono spontanee e coltivate in Italia. 8vo. 264 wood-cuts. Turin and Rome: 1880.

De Bray, Le Bon. Jean. La Ramie, sa Culture, son Rendement, ses Avantages. Second edition, 12mo. Paris: 1879.

Archer, Thomas Croxen. Profitable Plants, a Description of the Principal articles of Vegetable Origin used for Food, Clothing, Tanning, Dyeing, Building, Medicine, Perfumery, etc. 16mo. 20 colored plates. London: 1853.

Christy, Thomas, F. L. S. New Commercial Plants, with directions how to grow them to the best advantage. Parts 1–4, 8vo. Plates and wood-cuts. London: 1878–1881.

Villa Franca, M. le Baron de. Note sur les Plantes Utiles du Brésil. 8vo. pamphlet. Paris: 1880.

Karsten, H. Deutsche Flora. Pharmaceutisch-medicinische Botanik, etc. Lieferungen 1–5, 8vo. 320 wood-cuts. Berlin: 1880.

Salmon, William, M. D. The English Herbal, or History of Plants, etc. Adorned with exquisite Icons or Figures of the most considerable species, representing to the life the true forms of those several Plants. The whole in Alphabetical Order. Folio. Many wood-cuts. London: 1710.

Miller, Joseph. Botanicum Officinale, or a Compendious Herbal, giving an account of all such Plants as are now used in the practice of Physicians, with their Descriptions and Virtues. 8vo. London: 1722.

Meyrick, William, Surgeon. The New Family Herbal, or Domestic Physician, etc. 8vo. 14 plates. Birmingham: 1790.

Hill, Sir John, M. D. The Family Herbal, etc. 8vo. Colored plates. Bungay: 1812.

Medical Botany, or History of Plants in the Materia Medica of the London, Edinburgh, and Dublin Pharmacopeias, arranged according to the Linnæan System. 2 vols. Royal 8vo. 138 colored plates. London: 1821, 1822.

Martius, Dr. C. F. P. de. Icones Selectæ Plantarum Cryptogamicarum quas in itinere per Brasiliam annis 1817–20 instituto collegit et descripsit. Small folio. 76 colored plates. Monachii: 1828–1834.

Eaton, Daniel Cady. The Ferns of North America. 2 vols. Royal 4to. 81 colored plates. Salem: 1879, 1880.

Underwood, Lucius M., Ph. D. Our Native Ferns and how to study them, with Synoptical Descriptions of the North American species. Small 8vo. Wood-cuts. Bloomington, Ill.: 1881.

Martens, M., and H. Galeotti. Mémoire sur les Fougères du Mexique. 4to. 23 plates. Bruxelles: 1842.

Clarke, Charles Baron. A Review of the Ferns of Northern India. 4to. 36 plates. London: 1879. [From the Transactions of the Linnæan Society].

Scott, John, Curator of the Royal Botanic Gardens, Calcutta. Notes on the Tree Ferns of British Sikkim, etc. 4to. 18 plates. London: 1874. [From the Transactions of the Linnæan Society].

Britten, James, F. L. S. European Ferns, with colored illustrations from Nature, by D. Blair, F. L. S. 4to. Parts 5–27, in continuation. London, Paris, and New York.

Bellairs, Nona. Hardy Ferns; How I collected and cultivated them. Small 8vo. London: 1865.

Gatty, Mrs. Alfred. British Sea Mosses, Drawn from Professor Harvey's "Phycologia Britannica." With appendix of new species, etc. 2 vols. royal 8vo. 80 colored plates. London: 1872.

Gifford, Isabella. The Marine Botanist; an Introduction to the Study of the British Sea-weeds, etc. Third edition, greatly enlarged and improved, with illustrations. 16mo. Colored and other plates. Brighton (England), and London: 1853.

Landsborough, Rev. D., A. L. S. A Popular History of British Sea-weeds, etc. Third edition. 16mo. Colored plates. London: 1857.

Farlow, W. G., M. D. Marine Algæ of the New England and Adjacent Coast. Reprinted from the Report of the U. S. Fish Commission for 1879. 8vo. 15 plates. Washington: 1881.

Hervey, A. B., A. M. Sea Mosses. A Collector's Guide and an Introduction to the Study of Marine Algæ. 12mo. 20 colored plates. Boston: 1881.

Lucand, L. Figures Peintes de Champignons, suites a l'Iconographie de Bulliard. First Fasciculus. 4to. 25 water color drawings. No date: no imprint.

Pauchon, A. Recherches sur le Role de la Lumière dans la Germination. 8vo. Plate. Paris: 1880.

Guillemin and Dumas. Observations sur l'Hybridité des Plantes en général, et particulièrement sur celle de quelques Gentianes Alpines. 4 to. pamphlet. Colored plate. [Extrait du tome 1er des Mémoires de la Société d'Histoire Naturelle de Paris. Lu dans la séance du 3 Aout, 1821].

Darwin, Charles and Francis. The Power of Movement in Plants. Small 8vo. 196 wood-cuts. London: 1880.

Alvarez Alvistur, El Ilmo. Sr. D. Luis. Estudio Experimental acerca de las Enfermedades de la Patata (Solanum Tuberosum). 8vo. pamphlet. Madrid: 1880.

Ormerod, Eleanor A., F. M. S., etc. A Manual of Injurious Insects. Small 8vo. Many wood-cuts. London: 1881.

Jackson, Benjamin Daydon, Secretary of the Linnæan Society. Guide to the Literature of Botany; being a Classified Selection of Botanical Works, including nearly 6,000 titles not given in Pritzel's "Thesaurus." Published for the Index Society. Square 8vo. London: 1881.

Britten, James, F. L. S., and Robert Holland. A Dictionary of English Plant Names. Parts 1 and 2. 8vo. London: published for the English Dialect Society, 1878, 1879.

Earle, John, M. A. English Plant Names from the Tenth to the Fifteenth Century. 16mo. Oxford: 1880.

Ulrich, Dr. Wilhelm. Internationales Wörterbuch der Pflanzennamen in Lateinischer, Deutscher, Englischer, und Französischer Sprache. Second edition. 8vo. Leipsic: 1875.

Wills, George S. V. Dictionary of Botanical Terms. 16mo. London: no date.

Morren, Ed. Correspondance Botanique. Liste des Jardins, des Chaires, des Musées, des Revues, et des Sociétés de Botanique du Monde. 8vo. pamphlet. Eighth edition, December, 1880. Liége: 1880.

Jougla, le Dr. Les Pyrénées Inconnues. Le Capsir et le Donnezan. 16mo. Paris: no date. [1881?]

Hole, S. Reynolds. Nice and Her Neighbors. Small 8vo. Wood-cuts. London: 1881.

Burbidge, F. W. The Gardens of the Sun, or a Naturalist's Journal on the mountains and in the forests and swamps of Borneo and the Sulu Archipelago. 8vo. Wood-cuts. London: 1880.

Bellairs, Nona. Wayside Flora, or Gleanings from Rock and Field towards Rome. Small 8vo. Plate. London: 1866.

Hulme, F. Edward., F. L. S., F. S. A. Familiar Wild Flowers. Second series. Small 8vo. 40 colored plates. London, Paris, and New York: no date.

Hortus Anglicus, or the Modern British Garden, etc. By the author of "The British Botanist." 2 vols. 12mo. London: 1822.

Hope, Frances Jane. Notes and Thoughts on Gardens and Woodlands. Written chiefly for amateurs. Edited by Annie J. Hope Johnstone. Small 8vo. London: 1881.

American Naturalist, vols. 12, 13, 14, and 15, for 1878, 1879, 1880, and 1881. 4 vols. 8vo. Philadelphia: 1878–1881.

Müller, E. Flore Pittoresque. Croquis d'apres Nature. 24 folio plates. Paris, Liége, and Berlin: 1872. [Librairie Spéciale des Arts Industriels et Décoratifs.]

Books and Pamphlets Presented.

Masters, Dr. Maxwell T., F. R. S., F. L. S., etc. On the Nomenclature of Garden Plants. Read at the Scientific Committee of the Royal Horticultural Society, 19th November, 1878.

——— ——— ——— ———. Side Lights on the Structure of Composites. Note on the Dimorphism of Restiaceæ. [Journal of Botany, February, 1879, pp. 33–37.] Plate.

——— ——— ——— ———. Note on the Bracts of Cruciferæ [Linnean Society's Journal, Botany, Vol. 14, pp. 391–399.]

——— ——— ——— ———. Remarks on the Superposed Arrangement of the Parts of the Flower. [Linnean Society's Journal, Botany. Vol. 15, pp. 455–478.]

——— ——— ——— ———. Note on the Relations between Morphology and Physiology in the Leaves of certain Conifers. [Linnean Society's Journal, Botany. Vol. 17, pp. 547–552.] Read December 4, 1879.

——— ——— ——— ———. On the Conifers of Japan. [Linnean Society's Journal, Botany. Vol. 18, pp. 473–524.] Plates 19 and 20. 14 wood-cuts. Read December 2, 1880. 6 pamphlets. 8vo. The Author.

Robinson, John. The Pine, its Life and Importance in Essex County. 8vo. pamphlet. [From the Bulletin of the Essex Institute, Vol. 10, Nos. 7, 8, and 9.] The Essex Institute.

——— ———. Our Trees in Winter. 8vo. pamphlet. [From the Bulletin of the Essex Institute] The Essex Institute.

——— ———. Notes on the Native and Extensively Introduced Woody Plants of Essex County, Mass. 8vo. pamphlet. [From the Bulletin of the Essex Institute, Vol. 11, Nos. 4, 5, and 6, 1879.] The Essex Institute.

——— ———. Ornamental Trees for Massachusetts Plantations. Read at the Winter Meeting of the State Board of Agriculture, December, 1880. 8vo. pamphlet. Boston: 1881. The Author.

——— ———. The Flora of Essex County, Mass. 8vo. Salem: 1880. The Essex Institute.

——— ———. Ferns of Essex County, Mass. 8vo. pamphlet. [From the Bulletin of the Essex Institute, Vol. 7, No. 3, March, 1875.] The Essex Institute.

Torrey Botanical Club, Bulletin of the. 6 numbers for 1880, and 11 numbers for 1881, to complete the set. 17 pamphlets, 8vo. New York: 1880, 1881. W. R. Girard, publisher.

Plumer, Mary A. An Essay on the Dissemination of Seeds. Read before the Essex Institute, July 7, 1881. 8vo. pamphlet. 1881. The Essex Institute.

A List of Plants growing without cultivation in Malden and Medford, Mass. With some Contributions to a Flora of Middlesex County. 18mo. pamphlet. Malden, the Middlesex Institute: 1881. George E. Davenport.

Downing, A. J. The Fruits and Fruit Trees of America. 14th edition. Small 8vo. New York: 1855. With MS. Notes and Corrections by Charles Downing. Also, the Second Revision and Correction, with large Additions, including the Appendices of 1872 to 1881, and containing many New Varieties. By Charles Downing. With nearly 400 Outline Illustrations of Fruits. New York: 1881. Charles Downing.

Downing, Charles. Third Appendix to the Fruits and Fruit Trees of America. 8vo. pamphlet. Outlines of fruits. New York: 1881. The Author.

Brincklé, William D. The North American Pomologist. With colored plates by Alfred Hoffy; and Descriptions by Dr. Brincklé of Fruits of American Origin. 1 vol. 4to., and 1 unbound (duplicate) number. Philadelphia: 1851–1860. Charles Downing.

Lawson, William. A New Orchard and Garden, etc. 8vo. Wood-cuts. London: 1626. Reprinted at Philadelphia: 1858. William C. Eustis.

Laliman, L. Études sur les divers Travaux Phylloxériques et les Vignes Américaines, notamment sur les études faites en Espagne par Don Miret y Tarral, Vocal de la Commission du Phylloxera à Madrid. 8vo. pamphlet. Paris and Bordeaux: 1879, 1880. The Author.

Tisserand, M., Directeur de l'Agriculture. Rapport sur les Travaux Administratifs entrepris contre le Phylloxera, etc. Royal 8vo. pamphlet. Map. Paris: 1881. Ch. Joly.

Hogg, Robert. The Dahlia: its History and Cultivation, with descriptions of all the best show flowers. 8vo. 9 colored plates. London: 1853. Henry K. Oliver.

Paul, William. The Rose Annual for the years 1877–78, 1878–79, 1879–80, 1880–81. 4 pamphlets. 8vo. Colored plates of Roses. Waltham Cross, Herts. The Author.

Cranston, John. Cultural Directions for the Rose, etc. Sixth edition, revised. 8vo. 1877. The Author.

Dalgas, E. Anvisning til Anlæg af Smaaplantninger omkring Gaarde og Haver samt til Anlæg af levende Hegn og Anlæg af Pileculture. Second edition. 8vo. pamphlet. 5 plans. Copenhagen: 1875. Carl Haussen.

Vilmorin's Illustrirte Blumengärtnerei. Zweite auflage neu bearbitet und vermehrt von Th. Rümpler. 8vo. 1,416 wood-cuts. Berlin: 1879. Vilmorin, Andrieux, et Cie.

Vilmorin's Atlas of Flowers. English edition of the Atlas des Fleurs de Pleine Terre. 12mo. 1,128 wood-cuts. Paris: no date. Vilmorin, Andrieux, et Cie.

Vilmorin, Andrieux et Cie. Instructions pour les Semis de Fleurs de Pleine Terre, etc. Sixth edition. 12mo. Wood-cuts. Paris: no date. The Authors.

The Lawson Seed and Nursery Company. Agrostaphia, a Treatise on the Cultivated Grasses and other Herbage and Forage Plants. 4to. Colored plates. Edinburgh and London: 1877. The Authors.

Sharpe, Charles & Co. Permanent Grass Seeds used in British Agriculture, their Description and Properties. 4to. Wood-cuts. Grantham: 1879. The Authors.

B. K. Bliss & Sons. The Potato, How to Cultivate, etc. 8vo. pamphlet. Wood-cuts. New York: no date. The Authors.

Jamaica, Public Gardens and Plantations of. Annual Report, for the year ending September 30, 1880, by D. Morris, M. A., F. G. S., Director. Large 8vo. pamphlet. Kingston: 1881. Charles Gibb.

Joly, M. Ch. Note sur les Expositions Horticoles. 8vo. pamphlet. [Journal de la Société Centrale d'Horticulture de France, August, 1879.] The Author.

——— — —. Note sur deux Sociétés d'Horticulture aux Etats-Unis. 8vo. pamphlet. [Journal de la Société Nationale d'Horticulture, 3e Série, III, 1881.] The Author.

——— — —. Note sur l'Horticulture en Algérie. 8vo. pamphlet. [Journal de la Société Nationale d'Horticulture. 3e Série, III, 1881.] The Author.

Société Centrale d' Horticulture du Département de la Seine Inférieure. Bulletin, Tome 22, Cahier 4, 1880; Tome 23, Cahiers 1 and 2, 1881. 8vo. Rouen: 1879–1881.

Société d' Horticulture de la Sarthe. Bulletin, 3d and 4th Trimestres, 1880; 1st and 2d Trimestres, 1881. 8vo. pamphlets. Le Mans: 1881. The Society.

Société Royale d'Horticulture de Liége. Bulletin Grande Exposition générale & extraordinarie des Produits de l'Horticulture, July 24–28, 1881. The Society.

R. Società Toscana di Orticultura. Bulletino, Vol. 5, Nos. 11 and 12, 1880; Vol. 6, Nos. 1–10, 1881. 8vo. Florence: 1880, 1881. The Society.

The Canadian Horticulturist. Vol. 4, 1881. 8vo. Published by the Fruit Growers' Association of Ontario. Toronto: 1881. The Association.

Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec. Fifth and Sixth Annual Reports, for the years 1879 and 1880. 2 pamphlets. 8vo. Montreal: 1880, 1881. Also, extra copies for distribution. Henry S. Evans, Secretary.

New York Horticultural Society. Monthly Reports for February, March, April, May, September, and October. 6 pamphlets. 8vo. Other documents. James Y. Murkland, Secretary.

Western New York Horticultural Society. Twenty-first and Twenty-sixth Annual Meetings, Rochester, 1876 and 1881. 2 pamphlets. 8vo. Rochester: 1876 and 1881. P. C. Reynolds, Secretary.

New Jersey State Horticultural Society. Proceedings at the Sixth Annual Meeting, held at Newark, February 10th and 11th, 1881. 8vo. pamphlet. Trenton: 1881. E. Williams, Recording Secretary.

Michigan State Horticultural Society. Tenth Annual Report of the Secretary, 1880. 8vo. Lansing: 1881. Also, extra copies for distribution. Charles W. Garfield, Secretary.

Ohio State Horticultural Society. First Report, 1867; Second, 1868; Third, 1869; Fourth, 1870; Fifth, 1871; Sixth, 1872–3; Tenth, 1876–7; Fourteenth, 1880–81. 8 pamphlets. 8vo. Columbus: 1868–81. George W. Campbell, Secretary.

Indiana State Horticultural Society. Transactions for 1879 and 1880. 2 vols. 8vo. Indianapolis: 1879, 1881. D. E. Hoffman.

Illinois State Horticultural Society. Transactions. New Series. Vol. 14, for 1880 8vo. Chicago: 1881. O. B. Galusha, Secretary.

Kentucky Horticultural Society. Proceedings at the meeting at Bowling Green, January 11, 12, and 13, 1881. 8vo. pamphlet. Frankfort: 1881. Two copies. J. Decker, Secretary.

Wisconsin Horticultural Society. Transactions for 1879–80. 8vo. Madison: 1880. F. W. Case, Secretary.

Iowa State Horticultural Society. Transactions, Vol. 14, for 1879. 8vo. Des Moines: 1880. J. L. Budd, Secretary. Another copy from G. B. Brackett, and a third from C. L. Watrous, President. Transactions for 1880, Vol. 15. 8vo. Des Moines: 1881. C. L. Watrous, President.

Kansas Horticultural Report, Vols. 7, 8, and 10, for the years 1877, 1878, and 1880. 3 vols. 8vo. Topeka: 1878, '79, '80. Also, the Second Report on Forestry, by the Kansas State Horticultural Society, 1880. 8vo. pamphlet. Topeka: 1881. G. C. Brackett, Secretary.

Worcester County Horticultural Society. Transactions for 1847–1851 and 1865; 1855; 1857–1864; 1867, 1869, 1872, 1873, 1874, and 1876. Nine pamphlets. 8vo. George Cruickshanks. Transactions from its formation to the commencement of the year 1847, by George Jaques. Transactions for 1852 and 1853; 1854, 1856, 1866, 1868, 1870. Seven pamphlets. 8vo. C. E. Brooks, Librarian. Transactions for 1880. 8vo. pamphlet, completing the set. Edward W. Lincoln, Secretary.

Maine State Pomological Society. Premium List and Regulations for the Ninth Annual Exhibition, Gardiner, Sept. 20–22, 1881. 8vo. pamphlet. Gardiner: 1881. George B. Sawyer, Secretary.

Pennsylvania Fruit Growers' Society. Report for 1880. 8vo. pamphlet. Plates. Harrisburg: 1880. E. B. Engle, Secretary.

California State Viticultural Commission. First Annual Report. 8vo. pamphlet. Map and plate. Second edition, revised. Sacramento: 1881. John H. Wheeler, Secretary.

United States Department of Agriculture. Report of the Commissioner for the year 1879. 8vo. Many plates and maps. Washington: 1880. Also, Special Reports, Vol. 2, 1879–80, and Vol. 3, 1880–81. 2 vols. 8vo. Maps, etc. Washington: 1881. Hon. George B. Loring, Commissioner.

Campbell, George W., Assistant Commissioner to the Paris Universal Exposition, 1878. Reports of United States Commissioners: Horticulture. 8vo. pamphlet. 1881. The Author.

United States Commissioner of Patents. Report for the year 1852. Part 2, Agriculture. 8vo. Washington: 1853. The Essex Institute.

Maine Board of Agriculture. Twentieth, Twenty-second, and Twenty-fourth Annual Reports of the Secretary, for the years 1875, 1877, and 1880. 2 vols. 8vo. Augusta: 1875, 1877, and 1880. Z. A. Gilbert, Secretary.

Vermont Agriculture. Sixth Report, by the Superintendent of Agricultural Affairs, John B. Mead, 1879–80. 8vo. Montpelier: 1880. Dr. Hiram A. Cutting, Secretary of the State Board of Agriculture.

Massachusetts Board of Agriculture. Twenty-eighth Report of the Secretary, for 1880. 8vo. Boston: 1881. John E. Russell, Secretary.

Connecticut Board of Agriculture. Fourteenth Annual Report of the Secretary, 1880–81. 8vo. Hartford: 1881. T. S. Gold, Secretary.

New Jersey State Board of Agriculture. Eighth Report, for the year 1880. 8vo. pamphlet. P. T. Quinn.

Virginia Commissioner of Agriculture. Third and Fourth Reports, for 1879 and 1880. 2 pamphlets. 8vo. Richmond: 1879, 1880. Dr. Thomas Pollard, Commissioner.

Michigan State Board of Agriculture. Nineteenth Annual Report of the Secretary, for the year ending August 31, 1880. 8vo. Lansing: 1880. The State Agricultural College Library.

Atwater, Professor W. O. Report of Field Experiments with Fertilizers. 1880. 8vo. pamphlet. The Author.

Nebraska Agricultural College. Report of Experiments at College Farm, Lincoln: 1880. 8vo. pamphlet. H. Culbertson, Superintendent.

Dalgas, E. Hede-Moser og Kjærjorde. 8vo. pamphlet. 4 plans. Copenhagen: 1876. Carl Haussen.

International Dairy Fair, held at the American Institute, New York City, December, 1878. Report and Proceedings of the Executive Committee. 8vo. pamphlet. New York: 1879. J. H. Reall.

American Agricultural Association, Journal of the. Nos. 1–4. 2 pamphlets. 8vo. Wood-cuts. New York: 1881. J. H. Reall, Secretary.

New England Agricultural Society. Premium List for their Eighteenth Annual Exhibition in connection with the Worcester Agricultural Society, at Worcester, Mass., September 6–9, 1881. The Society.

Iowa State Agricultural Society. Report of the Board of Directors for the year 1880. 8vo. Des Moines: 1881. John R. Shaffer, Secretary.

Essex Agricultural Society. Transactions for 1880. 8vo pamphlet. Charles R. Preston, Secretary.

Armada (Michigan) Agricultural Society. Premium List for 1881. 24mo. pamphlet. Romeo: 1881. Dr. J. E. Barringer, Secretary

Brooklyn Park Commissioners. Report from January, 1874, to December 31, 1879. 8vo. pamphlet. Maps and photographs. Brooklyn: 1880. Also Report for the year 1880. 8vo. pamphlet. Brooklyn: 1881. Edward H. Brundage.

Boston Park Commissioners. Fifth and Sixth Annual Reports for the years 1879 and 1880. 2 pamphlets. 8vo. Maps. Boston: 1880, 1881. The City of Boston.

Chicago South Park Commissioners. Report to the Board of County Com-

missioners of Cook County, from December 1, 1879, to December 1, 1880. 8vo. pamphlet. 2 maps. Chicago: 1880. H. W. Harmon, Secretary.

Mount Auburn Cemetery. Annual Reports of the Trustees for 1869, 1879, and 1880. Three pamphlets. 8vo. Boston: 1870, 1880, 1881. J. Harris Reed, Secretary.

Boston Society of Natural History. Proceedings, Vol. 18, Part 2; Vol. 19, Part 1; Vol. 20, Part 3. Three pamphlets. 8vo. Boston: 1876, 1877. Memoirs, Vol. 2, Part 3, Nos. 3 and 4. 2 pamphlets. 4to. Boston: 1874. The Society.

Essex Institute, Bulletin of the. Nine numbers to complete the set. 8vo. The Essex Institute.

Science Advocate. Vol. 2, 1881. 8vo. Issued by the Natural Science Society of Atco, N. J. The Society.

Beretning fra den Kongelige Veterinær-og Landbohojskole for Undervisningsaaret fra 23de August, 1877, til 22de August, 1878. 8vo. pamphlet. Copenhagen: 1879. Carl Haussen.

Maine College of Agriculture. Annual Report of the Trustees and Officers. 8vo. pamphlet. Augusta: 1880. M. C. Fernald, President.

Kansas State Agricultural College. Eighteenth Annual Catalogue of Officers and Students, 1880–81. 8vo. pamphlet. Manhattan: 1881. Milan L. Ward, A. M., Librarian.

Missouri University. Thirty-ninth Catalogue, 1880–81. 8vo. pamphlet. 5 plates. Jefferson City: 1881. G. C. Swallow, Professor of Agriculture.

Drury College, Springfield, Greene Co., Mo. Eighth Annual Catalogue, 1880–81. 8vo. pamphlet. Springfield: 1881. Rev. Nathan J. Morrison, D. D., President.

Astor Library. Thirty-second Annual Report of the Trustees, for the year ending December 31, 1880. 8vo. pamphlet. Albany: 1881.

Mercantile Library Association of the City of New York. Sixtieth Annual Report of the Board of Direction, May, 1880, to April, 1881. 8vo. pamphlet. New York: 1881.

Iowa State Library. Report of the Librarian for the years 1880 and 1881. 8vo. pamphlet. Des Moines: 1881. Mrs. S. B. Maxwell, Librarian.

American Antiquarian Society. Proceedings at the Annual Meeting, Worcester, October 21, 1880, and at the Semi-Annual Meeting, held at Boston, April 27, 1881. 2 pamphlets, 8vo. Worcester: 1881. The Society.

New England Historic Genealogical Society. Proceedings at the Annual Meeting, January 5, 1881. 8vo. pamphlet. Boston: 1881. Hon. Marshall P. Wilder, President.

United States Commissioner of Education. Report for 1879. 8vo. Washington: 1879. Hon. John Eaton, Commissioner.

Wilber, C. D., LL. D., etc. The Great Valleys and Prairies of Nebraska and the Northwest. Third edition. Small square 8vo. Omaha: 1881. Leavitt Burnham, Land Commissioner Union Pacific Railway.

Periodicals Taken.

English. — Gardeners' Chronicle.
Gardeners' Magazine.
Journal of Horticulture and Cottage Gardener.
The Garden.
Gardening Illustrated.
Curtis's Botanical Magazine.
Floral Magazine.
Florist and Pomologist.
Journal of Botany.
Country Gentleman's Magazine.
Farmer's Magazine.
Journal of Forestry.
French. — Revue Horticole.
Revue des Eaux et Forêts.
Belgian. — Illustration Horticole.
Flore des Serres.
Belgique Horticole.
Revue de l' Horticulture, Belge et Étrangère.
German. — Botanische Zeitung.
Gartenflora.
American.—Country Gentleman.

Periodicals Presented.

New England Farmer.
Massachusetts Ploughman.
American Cultivator.
American Agriculturist.
American Garden.
Vick's Illustrated Monthly Magazine.
Empire State Agriculturist.
Gardener's Monthly.
Seed Time and Harvest.
Botanical Gazette.
Botanical Index.
Semi-Tropic California.
American Rural Home.
Rural New Yorker.
Maine Farmer.
Home and Farm.
Prairie Farmer.
Maryland Farmer.
The Industrialist.

Pacific Rural Press.
Florida Despatch.
Boston Daily Advertiser.
Boston Morning Journal.
Boston Post.
Boston Daily Globe.
Boston Evening Transcript.
Daily Evening Traveller.
The Cottage Hearth.

Report of the Secretary and Librarian,

FOR THE YEAR 1881.

The many changes which have taken place during the year now drawing to a close, together with the meeting of the American Pomological Society, have made it an unusually busy one. Notwithstanding this, and the added duties of Librarian, the belief which I expressed in my last report that the Transactions — which when it was written were in arrears, owing to my time having been so largely occupied in getting the History of the Society through the press — would be brought up, has been verified, though not at as early a day as if the changes alluded to had not occurred. The second part of the Transactions for 1881 has been begun and carried as far as is possible at present.

Besides the calls for naming fruits, such as have been mentioned in former reports, many specimens of flowers, particularly native plants, have been presented for name. With the help of experts in botany almost all of these have been identified, and I wish here to acknowledge my indebtedness to the Professor of Botany and to other students of native plants for their valuable assistance in this work. I would take the opportunity to remark, for the information of all who may wish to ascertain the names of plants, that it is extremely difficult to identify them by a single leaf, as is sometimes expected, or even by several leaves; but, if possible, the flowers and fruit should be procured, and if the leaves vary in character specimens of the root, stem, and floral leaves should be presented. So difficult is it to identify plants by a few leaves, that some of our most eminent botanists refuse to attempt it, without specimens of the flowers and the different classes of leaves. I have not thought it best to pursue this course, and in most instances have been successful in ascertaining the names of plants when the specimens presented were far inferior to what is desirable, and I make these suggestions not merely with the object

of saving labor in identifying plants, but because the chances of naming them, to the satisfaction of the inquirers, are much greater when good specimens are brought, than if we have only two or three leaves.

In regard to the Library, I would say that in addition to the routine work of purchasing books, keeping the various records required, delivering books for use here or for home study, etc., my attention has been especially directed to ascertaining what sets of periodicals and other books are imperfect and should be completed. Much work is needed in this direction, and a beginning has at least been made. In connection with the allusion above to the records, I may mention, that the name of every book added to the Library is required to be entered more or less fully in the various records, probably six times on the average.

To those who are in the habit of using the Library freely, it is unnecessary to say anything of its great and yearly increasing value. But these are but a small part of the whole Society, and it is to be hoped that as the Library grows from year to year, the number of members who avail themselves of its invaluable privileges will increase, and that the benefits which it will confer in the future may be more nearly commensurate with its capabilities. In this connection it will be of interest to chronicle the growth of a taste in the community for artistic work, as shown by the increased number of calls for correct plates of flowers to assist in painting and embroidery.

ROBERT MANNING,
Secretary and Librarian.

TREASURER'S REPORT,

FOR THE YEAR 1881.

RECEIPTS.

Balance on hand, January 1, 1881,	$ 3,675 06	
Rent of Stores,	10,274 94	
" " Halls,	5,398 17	
Admissions and Assessments,	1,242 00	
Mount Auburn,	2,187 26	
Four Exhibitions,	1,637 00	
Sale of History,	278 50	
Sundries,	16 85	
Interest on Bonds, C. B. & Q. R. R.,	105 00	
Amount of Prizes not drawn,	293 40	
		$25,108 18

EXPENDITURES.

Salaries,	$2,325 00	
Labor,	1,083 23	
Incidentals,	238 75	
Heating and Water, less paid by tenants,	482 81	
Gas,	1,025 59	
Repairs on Furniture and Fixtures,	404 95	
Taxes,	3,127 50	
Committee of Arrangements,	250 00	
Library Accessions, Stickney Fund,	700 00	
" " Periodicals, Binding, etc.,	199 88	
Repairs on Building,	619 62	
Expenses of Four Exhibitions,	1,152 94	
Stationery, Printing, and Postage,	1,622 31	
Interest,	3,899 98	
Garden Committee,	17 45	
Insurance,	30 00	
Extra Repairs on Building,	5,292 55	
Balance of cash on hand to new account,	2,635 62	
		$25,108 18

ASSETS.

Real Estate, Furniture, and Exhibition ware,		$256,585 56
Library last year,	19,846 24	
Added this year,	899 88	
		20,746 12
Bonds, Chicago, Burlington, and Quincy, at par,		1,500 00
Stereotype Plates, etc., and copies of History,		421 50
Cash on hand, December 31, 1881,		2,635 62
		$281,888 80

LIABILITIES.

Mortgage debt bearing interest at 5½ per cent., payable September, 1883,	$60,000 00	
Loan, without interest, payable to Harvard College in 1899,	12,000 00	
Note due Massachusetts National Bank,	12,000 00	
		$84,000 00
Surplus,		$197,888 80

MEMBERS.

Number of life members by last report,	572		
Added,	20		
Commutations,	5		
	597		
Deceased,	15		
		582	
Annual Members,	271		
Added,	15		
	286		
Commuted,	5		
Deceased,	6		
	11		
		275	
Total membership,			857

Income from above:

20 Life Members,	$600 00
15 Annual "	150 00
5 Commutations,	100 00
196 Assessments,	392 00
	$1,242 00

The Report of the Finance Committee upon the former Treasurer's accounts is as follows:

The Massachusetts Horticultural Society in account with E. W. Buswell, *Treasurer.*

1881.	By balance in treasury, Jan. 7, 1881, . .		$ 3,675 06
	" Total income as per receipt book, . .		18,174 76
			$21,849 82
1881.	To cash paid as per disbursement book, ...	$16,662 02	
	Balance to new account, . .	5,187 80	
			$21,849 82

Boston, June 10, 1881. We have examined the above, and find it correct, and the balance of cash on hand fifty-one hundred eighty-seven dollars and eighty cents, as stated.

C. O. Whitmore, } *Finance*
Francis B. Hayes, } *Committee.*

The Finance Committee having audited the accounts of the undersigned, made the following report:

The Massachusetts Horticultural Society in account with George W. Fowle, *Treasurer.*

1881.	By balance in treasury, June 3, 1881, . .		$ 5,187 80
	Total income as per receipt book, . .		27,661 02
			$32,848 82
1881.	To cash paid as per disbursement book, ...	$30,213 20	
	Balance to new account, . .	2,635 62	
			$32,848 82

Boston, Dec. 31, 1881. We have examined the above account and find it correct, and the balance of cash on hand two thousand six hundred and thirty-five dollars and sixty-two cents as stated.

C. O. Whitmore, } *Finance*
Francis B. Hayes, } *Committee.*

The undersigned entered upon the discharge of his duties as Treasurer on June 1, 1881, his predecessor holding the office during the previous portion of the past year. The preceding items

of receipts and expenditures are taken from the Treasurer's books. The expenditures for repairs have been considerable during the past year, being required to put the building in good order, and make improvements which were demanded, all of which were authorized by vote of the Society. For what has been accomplished, the expenditures have been quite reasonable. We have to compete with rival halls, and now, since the improvements have been made, our halls are more in request than they were before, and, in consequence thereof, we have already been considerably benefited by an increase of rentals. Yet we may not expect, in future, so large an income from the halls as we have formerly received, as new halls have lately been completed near our building. We must look to the improvement of our stores for a larger income, which is required for the purposes of the Society. Our receipts from Mount Auburn for the past year fell short of the previous year, but we hope we may obtain, in the future, an increase of receipts, as a portion of the income, which otherwise we should have received, was appropriated by the Proprietors of Mount Auburn to the improvement of newly purchased land, from the sales of which we may expect remunerative returns.

GEO. W. FOWLE, *Treasurer.*

Dr. *Massachusetts Horticultural Society, in account with the Proprietors of the Cemetery of Mt. Auburn.* **Cr.**

For Sales and Improvements within the Cemetery for the year ending December 31st, 1881.

Cost of filling up and improving land at Mt. Auburn, for the year ending December 31, 1881; the Massachusetts Horticultural Society being charged with their proportion of the same:			By Sales in January,	$215 00
Pearl Avenue to Eagle Avenue,	$5,108 62		" " " April,	2,928 50
One-quarter of	$5,108 62	$1,277 15	" " " May,	3,486 50
Balance due Massachusetts Horticultural Society,		2,187 26	" " " June,	688 38
			" " " July,	1,530 00
			" " " August,	1,421 50
			" " " September,	747 50
			" " " October,	1,624 00
			" " " November.	1,660 00
			" " " December,	459 25
			Net amount receipts from Receiving Tomb,	537 00
				$15,297 63
			Less graves repurchased,	40 00
				$15,257 63
			Deduct for Annual Expenses,	1,400 00
			Mass. Horticultural Society one-fourth part of	$13,857 63
		$3,464 41		$3,464 41

E. & O. E.

December 31, 1881.

H. B. MACKINTOSH, *Treasurer.*

MASSACHUSETTS HORTICULTURAL SOCIETY,

To THE PROPRIETORS OF THE CEMETERY OF MOUNT AUBURN, *Dr.*

For one-fourth part of the following expenditures for grading new lands for sale, during 1881:

Pearl Avenue to Eagle Avenue.

1,028¾ days, men, ...	$2,057 50	
871¾ " man and horse, ...	3,051 12	
		$5,108 62
One-fourth part is, ...		$1,277 15

MOUNT AUBURN, December 31, 1881. J. W. LOVERING, *Supt.*

I certify the foregoing to be a true copy of accounts of improvements fo the year 1881, rendered by the Superintendent.

H. B. MACKINTOSH, *Treasurer.*

MISCELLANEOUS PAPERS.

The Committee on Publication have much pleasure in adding to these Transactions, a paper on Edible Fungi, by Dr. E. Lewis Sturtevant, and also a Calendar of the Flowering of Trees and Shrubs in 1881, by John Robinson, Professor of Botany and Vegetable Physiology to the Society, in continuation of that for 1880, which may be found in Part I of the Transactions for that year, page 161.

A LIST OF EDIBLE FUNGI,

COMPILED BY E. LEWIS STURTEVANT, M. D., SOUTH FRAMINGHAM, MASS.

Agaricus.

The name of Mushroom is applied collectively to certain of the larger fungi, but is more usually restricted to *Agaricus campestris*, and the species confounded with it. There are many varieties of mushrooms which can be classed as edible, but as the bad properties depend upon the degree in which a poisonous alkali is developed—a circumstance which varies with climate and situation—even those species which are usually wholesome may at times prove deleterious. Thus the common mushroom is said to be poisonous in Italy, although a most valued article of food almost everywhere amongst European epicures, and largely an object of cultivation. Dall mentions eating of two or three species, in Alaska, all poisonous in our climate, but in that extreme northern region proving to be innocuous and eatable, though quite tasteless. Nievhoff, in 1665, mentions mushrooms or toadstools in Batavia, called *Kulet* by the Malayans, and *Jamor* by the Javanese; some of a red, others of a pale green color, and some of which are used "here like as in Europe, and are eaten with wine and sugar." In Japan, Thunberg in 1775 saw various sorts which were in great request, common in the shops, dried for sale, and in almost daily use both

for soups and sauces. Mushrooms were held in detestation by the ancient Hindus, the legislator Yama declaring the eating them "whether springing from the ground or growing on a tree fully equal in guilt to the slaying of Brahmen" (W. Jones). They are eaten now by the Lepchas of India (Hooker). The mushroom appears not to have been cultivated by the Romans of antiquity. Pliny, however, mentions that they were highly prized by the epicures of his time, and notices those which grew at the roots of the oak as being highly esteemed. In Poland and Russia above thirty sorts are eaten by the peasantry, not only in their fresh state, but dried and preserved for winter consumption; in Lapland, called *mochoviki* and used by the people. In France, Germany, and Italy, says Badham, funguses not only constitute for weeks together the sole diet of thousands, but the residue, either fresh or dried, or variously preserved, in oil, vinegar, or wine, is sold by the poor, and forms a valuable source of income to many who have no other produce to bring into the market. In England many species are consumed in a fresh state, or made into sauces. In 1876 some one hundred and forty tons of edible fungi were exported from the island of Otaheite in a dried state, with a declared value of $28,000. In America they prove a valued food to the epicure. Du Pratz, in his History of Louisiana, notes the use of a kind of agaric by the colonists of epicurean tendencies. Not only in China, says Cooke, but also in the Himalayas and in the Rocky Mountains, as well as in Terra del Fuego, New Zealand, and Australia, to say nothing of European countries, certain species afford wholesome and nutritious food.

Agaricus campestris, L.—A cultivated fungus, which is quite variable. Badham enumerates five varieties. The wild form is a native of northern climates. Cooke enumerates var. *pratensis*, Vitt., in pastures; var. *silvicola*, Vitt., in woods; var. *hortensis*, Ault., the cultivated form; var. *vaporarius*, Otto; var. *rufescens*, Beck. The Paris growers have several varieties: the small white, greatly esteemed and always eaten whole; the large white; the cream-colored; and the gray, very large, sometimes measuring thirteen and one-half inches in diameter. This mushroom is condemned in the markets of Rome. In Milan but recently eaten. In the Venetian States scarcely known. It is regarded as a suspicious species in Hungary. At Vienna it meets with a welcome. In France, in Britain, and in the United States, it is the one most extensively

consumed. The daily production of mushrooms in and about Paris is estimated at about twenty-five tons (Robinson). They are eaten fresh, canned, dried, grated to powder, and bottled in butter or oil.

Called in French *champignon comestible;* in Dutch *hampernoelje;* in German *essbare blatterschamme;* in Spanish *seta;* in Italian *pratajolo* or *pratolino*.

Among the species of mushrooms which are used as food, we note the following:—

A. acerbus, Bull.—Eaten at Milan (Vittadini).

A. cægerita, Fr.—An excellent mushroom, of an agreeable odor and flavor (Cordier).

A. albellus, DC.—Classed by Cooke as esculent.

A. alutaceus, Pers. (Syn. *Russula acres*, Badh.)—Ranked by Vittadini among the safe kinds and even when raw "a dainty food." Berkeley reports it as esculent when young, but remarks that acrid specimens occur. Badham does not advise its use as food.

A. amethystinus, Scop.—Cordier says esculent, and of exquisite taste.

A. amygdalinus, Curt.—Found in the United States. Dr. Curtis says it can scarcely be distinguished when cooked from the common mushroom.

A. anisatus, Pers.—Said by Unger to be edible.

A. Aquifolii, Pers.—Said by Unger to be edible.

A. aromaticus, Roques.—Called an edible species by Unger.

A. arvensis, Schoef.—Sent in enormous quantities to Covent Garden, London, where it frequently predominates over *A. campestris*. Some persons prefer this, which has a stronger flavor, to the ordinary mushroom, and it is the species most commonly sold in the autumn in the streets of London and provincial towns. According to Persoon, it is preferred in France; and in Hungary it is considered as a special gift from St. George. It has acquired in England the name of horse mushroom, from the enormous size it sometimes attains. Withering mentions a specimen that weighed fourteen pounds (Cooke). Occurs in California (Harkness & Moore, "California Fungi").

A. arvensis, Schoef., var. *exquisitus*, Vitt.—Said by Mrs. Hussey to be esculent, and to possess a resemblance in taste to bitter almonds.

A. arvensis, Schoef., var. *villaticus*, Brond., which often forms rings in meadows in England, is said by Cooke to be esculent.

A. atramentarius, Bull.—The young specimens are said by Badham to form a fine ketchup.

A. attenuatus, DC.—Classed by Unger as edible.

A. auratus, Krombh.—Stated by Cordier to be sought as a food in middle France.

A. aureus, Pers.—Classed by Unger as edible.

A. aurantiacus.—Was known to the Romans under the name of Boletus, and as always occurring in the chestnut forests of southern Europe. It is this species which Nero calls *cibus deorum*, or food of the gods (Unger).

A. Auricula, DC.—Classed by Unger as edible.

A. bombycinus, Schoef.—Eaten in Tuscany (Cordier) and is enumerated by Curtis as esculent in the United States.

A. brevipes, Bull.—Stated by Paulet to be esculent and very delicate.

A. Cæsareus, Scop.—Called in Germary *Kaiserling*, and universally eaten on the continent of Europe. In the United States it grows in great quantities in oak forests, but Dr. Curtis pronounces it the most unpalatable of fungi.

A. cæspitosus, Curt.—Found in the United States in enormous quantities, and is reckoned by Dr. Curtis a very fair esculent, better than *A. melleus*, Fr.

A. caligatus, Viviani.—Called esculent by Cordier.

A. candicinus, Badh.—One of the best funguses of southern Italy (Badham). It makes the greatest show in the Italian market places (Cooke).

A. cardarella, Fr., of Europe, is enumerated as edible by Mueller.

A. castaneus, Bull.—Reported by Berkeley as esculent.

A. cepæstipes, Weinm.—Called esculent by Cordier.

A. Columbetta, Fr.—Enumerated by Curtis as edible in the United States. It is found in Britain, but not eaten (Cooke).

A. comatus, Badh.—Young specimens used for making ketchup (Badham).

A. consociatus, Curt.—A species confined to the United States, and is enumerated by Curtis as edible (Cooke).

A. cortinellus, DC.—Edible according to Unger.

A. cretaceus, Fr.—In France considered edible, and of excel-

lent quality (Cordier). Said by Curtis to be edible in the United States.

A. cyathiformis, Bull. (Syn. *A. platyceps*, Pers.; *A. tardus*, Pers.; *A. æreus*, Pers.)—Called edible by Cordier.

A. cylindraceus, DC.—Called esculent by Cordier.

A. dealbatus, Pers.—Cooke says a dish of young individuals makes a most excellent stew. Marked by Harkness & Moore as edible in California.

A. deliciosus, L.—One of the best agarics. Its flesh is firm, juicy, sapid, and nutritious. The milk is red and subsequently turns green (Badham). Sowerby says it is very luscious eating. James Smith says it is the most delicious mushroom known.

A. dimidiatus, Bull. (Syn. *A. cornucopiæ*, Pers.; *A. inconstans*, Pers.; *Panus conchatus*, Fr.)—Cordier says edible and of agreeable savor and odor.

A. dryinus, Pers.—Called edible by Cordier.

A. eburneus, Bull. (Syn. *Hygrophorus eburneus*, Fr.)—Said by Cordier to be esculent, and to possess an agreeable odor and flavor. It occurs in South Carolina, and is edible (Curtis).

A. Eryngii, DC., of Europe, is edible (Mueller).

A. esculentus, Jacq. (Syn. *A. perpendicularis*, Bull.)—Said by Cordier to be esculent, and in spite of its small size to be held in esteem in Austria. Eatable, says Berkeley, but not much esteemed, on account of its bitter flavor. It is called at Vienna, where large baskets appear in the markets in spring, *nagelschwamme*. The smallest of the edible species, says Cooke. It occurs in the United States.

A. excoriatus, Schaeff., a pasture mushroom, is excellent (Cooke). Occurs in the United States (Curtis; Harkness & Moore).

A. exquisitus, Badh. (Syn. *A. Georgii*, With.)—Often attains the weight of five or six pounds. It is considered less delicate than *A. campestris* in Britain, but looked upon in Hungary as a special gift from St. George. Persoon describes it as superior to *A. campestris* in smell, taste, and digestibility, and hence generally preferred in France.

A. extinctorius, L.—An edible species of Europe.

A. fossulatus, Cooke.—Found on the Cabul hills, where it is collected and dried, and forms an article of commerce with the plains (Cooke).

A. fragrans, Sow.—This fragrant species, with a sweet, anise-like odor, is pronounced edible by Cordier.

A. frumentaceus, Bull., of the United States, is commended as edible by Dr. Curtis.

A. fusipes, Bull. (Syn. *A. crassipes*, Schaeff.), if carefully dried can be kept to enrich gravies, says Mrs. Hussey. It cannot be commended for a stew on account of its toughness, notwithstanding the agreeableness of its flavor. Badham says the young plants make an excellent pickle, while the full grown ones may be stewed. Found esculent in California (Harkness & Moore).

A. gambosus, Fr. (Syn. *A. Gregorii*, L.)—Esculent, says Cordier, and frequently eaten in Scandinavia. Cooke says it is the *moucheron* or *mousseron* of the French, and highly esteemed in France and Italy. Guillarmod includes it amongst Swiss esculents. Professor Buckman says it is one of the earliest and best of English mushrooms.

A. Garridelli, Fr.—Pronounced esculent by Cordier. Its odor and flavor are agreeable.

A. geminus, Paul.—Paulet says this species is very good to eat.

A. Georgii, L. (Syn. *A. graveolens*, Sow.; *A. prunulus*, Vitt.)—Mrs. Hussey says the odor is like newly ground flour; the taste agreeable raw, scent extremely powerful when dried, and excellent for food.

A. geotropus, Bull.—This species, especially one of its varieties, is considered excellent; equal to many, and superior to most of our edible fungi. It is recognized as esculent in the United States as well as on the continent of Europe (Cooke).

A. giganteus, Schoef.—The scent is slight but agreeable. Esculent (Mrs. Hussey).

A. gilvus, Pers.—Called edible by Cordier.

A. glandulosus, Bull.—Recorded as edible in the United States (Cooke).

A. gracilentus, Kromb.—Esculent (Cooke).

A. graveolens, Pers.—Delicate to eat, and is used frequently in middle France (Cordier).

A. griseus, Pers.—Esculent, according to Reveil (Cordier).

A. gymnopodius, Bull.—Recorded as esculent by Cordier.

A. haematochilis, Bull.—Stated by Unger to be esculent.

A. hariolorum, Bull.—Said by Bulliard to have a very agreeable taste, and is nearly without odor. Esculent.

A. heterophyllus, Fr.—Mrs. Hussey says the taste is mild, like pure hog's lard, never acrid; an extremely excellent article of food. Badham says it tastes like the crawfish when grilled. Vittadini and Roques pronounce it a most excellent species for food purposes.

A. holosericeus, Fr.—Pronounced esculent by Cooke.

A. hypopithyus, Curt. — Confined to the United States, and enumerated by Curtis as esculent.

A. ilicinus, DC.—Classed by Unger as edible.

A. illinatus, Fr.—Edible in California (Harkness & Moore).

A. incarnatus, Pers.—Called edible by Unger.

A. infundibuliformis, Bull.—Called edible by Unger.

A. laccatus, Scop. (Syn. *A. amethysteus*, Bull.)—Called edible by Cordier, but the stalks are rejected as being too leathery.

A. lacrymabundus, Cooke.—This doubtful species is used by the smaller ketchup manufacturers in Britain (Cooke).

A. leiocephalus, DC.—The flesh of this esculent species is firm, and the odor agreeable (Cordier).

A. leochromus, Cooke.—Certainly wholesome (Cooke).

A. lepidus, Fr. (Syn. *Russula lepida*, Fr.)—Flesh extremely firm, crisp, and brittle, perfectly mild, esculent, and excellent (Mrs. Hussey).

A. longepis. Bull.—Called edible by Harkness & Moore.

A. marzuolus, Fr.—An European species; edible (Mueller).

A. mastoideus, Fr.—Esculent (Cooke). Occurs in the United States (Curtis).

A. maximus, Fr., of the United States, is pronounced esculent by Cooke. It is figured by Sowerby under the name of *A. giganteus*.

A. melleus, Vahl.—A species common on rotten stumps in England, but it is very acrid, and would not be an acceptable article of food in England even if free from danger (Berkeley). One of the commonest of all edible fungi in the public markets of Vienna, where it is called *hallimasche*. Esculent but not commendable (Cooke). Catalogued as edible by Curtis, of North Carolina, and Harkness & Moore, of California.

A. mouceron, Bull. (Syn. *A. prunulus*, Vitt.)—Classed as edible by Unger.

A. mucidus, Schrad.—Esculent according to Chevalier (Cordier).

A. muscarius, Cooke.—Many instances have been recorded of

poisoning by this fungus, yet it cannot be doubted that it is eaten in Russia. It is supposed that the poisonous quality is removed by the mode of cooking, salt and vinegar being used, and long boiling (Cooke).

A. mutabilis, Schoef. (Syn. *A. marginatus*, Batsch.; *A. candicinus*, Pers.; *A. annularius*, Bull. pl. 543, O. P.)—(*A. annularius*, Bull. pl. 377 is poisonous.)—Mrs. Hussey says it is esculent, and its flavor peculiar, resembling gingerbread. Called esculent by Cooke. Catalogued as esculent in the United States (Curtis; Harkness & Moore).

A. nebularis, Batsch. (Syn. *A. pileolarius*, Bull.; *A. canalicalatus*, Schurm.; *A. turgidus*, Grev.; *A. caseus*, With.)—Mrs. Hussey says this is extremely tender and digestible when carefully cooked. Persoon recommends it as very agreeable in flavor. All who have tried this fungus, says Cooke, agree that it is of a most delicate flavor, and easy of digestion. Badham says the odor is strong, like that of curd cheese, and the taste is grateful. Called esculent in the United States (Curtis).

A. nudus, Bull.—Cordier says esculent; very good and delicate; feeble odor, agreeable flavor.

A. odorus, Bull.—Cooke says this species has the reputation of supplying a rather delicate, even exquisite, dish. It does not appear to be eaten on the continent of Europe, and Roques considers its alimentary qualities as doubtful. Classed as edible by Mueller. Catalogued as edible by Harkness & Moore for California.

A. Oniscus, Fr.—Occurs in California, and is called edible by Harkness & Moore.

A. Orcellus, Bull. (Syn. *A. pallidus*, Sow.)—Odor of fresh meal and cucumbers, esculent and excellent (Mrs. Hussey). A very delicate mushroom. It has the peculiar smell of a cucumber rind or syringa leaf (Badham).

A. oreades, Bolt.—A little buff fungus of excellent flavor, which when dried may be kept for years. It is called Scotch bonnets. It is famous for the flavor it imparts to rich soups and gravies. It is much used in a dried state in France and Italy. (Badham).

A. ostreatus, Jacq.—So universally eaten that it is included in almost every list and book on edible fungi. It is the most common species in Transylvania, tons of it sometimes appearing in

the markets. It does not possess that delicate flavor which is found in many species, and although extolled by some beyond its merits, it is nevertheless perfectly wholesome, and, when young and carefully cooked, not to be despised (Cooke). It is found growing on the poplar and willow (Vittadini), apple and laburnum (Berkeley), elm and ash (Badham). It occurs in the United States and is listed as esculent.

A. ovinus, Bull.—Edible according to Unger.

A. ovoideus, DC.—Classed by Unger as edible.

A. palomet, Thore. (Syn. *A. virens*, Scop.)—Called edible by Unger.

A. personatus, Fr. (Syn. *A. bicolor*, Pers.)—Flesh very thick, solid, but not tough, mottled; flavor pleasant with a slight earthiness, resembling beet-root; esculent (Mrs. Hussey). Sold under the name of Blewitts in Covent Garden market, London. When not water-soaked it is a fine, firm fungus with a flavor of veal (Badham).

A. petaloides, Bull.—Called edible by Cordier.

A. pileolarius, Sow.—Flesh white, moderately thick in the centre; flavor and smell agreeable: esculent (Mrs. Hussey).

A. piperatus, Scop.—Though very acrid when raw, it loses its bad qualities entirely by cooking, and is extensively used on the continent of Europe, prepared in various ways (Badham).

A. pometi, Fr.—Recorded as edible in the United States (Harkness & Moore).

A. praecox, Pers.—According to Lenz and Schaeffer, esculent.

A. præstans, Cord.—Called edible by Cordier.

A. pratensis, Schaeff. — Edible in California (Harkness & Moore).

A. procerus, Scop.—The *parasolschwam* of the Germans, the *columelle* of the French, the *rubbola maggiore* of the Italians, the *cogomeles* of the Spaniards. One of the most delicate funguses of England (Badham) and sold in Covent Garden market (Berkeley). In Italy and France it is in high request. In Austria, Germany, and Spain is eaten. Occurs in Pennsylvania (Cooke) and California (Harkness & Moore).

A. prunulus, Fr. (Syn. *A. Sowerbeii*, Kromb.)—Flesh white; odor agreeably of flour; esculent (Mrs. Hussey). *A. prunulus*, Vitt., (Syn. *A. mouceron*, Bull.) is said by Badham to be the most savory fungus with which he is acquainted. Balbi calls it a rare and most delicious agaric, and says it is eaten fresh.

A. pudicus, Bull.—Esculent, says Berkeley. Certainly wholesome, says Cooke.

A. rachodes, Vitt., in a youthful state is excellent eaten in substance; when old, and in texture like chamois leather, the ketchup it affords is scanty in quantity but super-excellent in quality (Mrs. Hussey). It may be eaten (Cooke). Catalogued for the United States by Curtis, and by Harkness & Moore.

A. radicatus, Bull.—Enumerated as edible in the United States (Cooke).

A. rhodopolius, Fr.—Esculent according to Paulet.

A. ruber, Schoef. (Syn. *A. griseus*, Pers.)—The *colomba rossa* of the Tuscans, and delicate and light of digestion (Badham).

A. rubescens, Pers. (Syn. *A. verrucosus*, Bull.)—Cordier says it is largely consumed in Lorraine, being very delicate. Roques speaks equally well of it. Dr. Curtis enumerates it as edible in the United States.

A. Russula, Schaeff.—Cordier says it is used for food in Austria. It is enumerated by Curtis as edible for the United States.

A. salignus, Fr.—Rare in England, but not uncommon on the continent of Europe and in the United States. In Austria it is commonly eaten (Cooke).

A. sambuciensis, Cord.—Classed as edible by Unger.

A. sapidus, Poir.—Called edible by Unger.

A. scorodonius, Fr.—Said by Cordier to be edible, and in frequent use in Lusace, France.

A. scruposus, Fr., has the odor of fresh meal, is of an agreeable taste and flavor, and is esculent (Cordier).

A. silvaticus, Schaeff.—Called edible in California (Harkness & Moore).

A. socialis, DC., has a good reputation in the Lower Pyrenees, but they eat the head, and not the stalk, which is leathery (Cordier).

A. solitarius, Bull.—Cordier says the flesh is white and of exquisite taste.

A. spadiceus, Cooke.—This doubtful species is used by the smaller ketchup manufacturers in Britain (Cooke).

A. speciosus, Fr.—Enumerated by Curtis as esculent in the United States.

A. spectabilis, Fr.—Esculent, according to Letellier (Cordier).

A. splendens, Pers.—An edible European species (Mueller).

A. squarrosus, Muel.—Enumerated as esculent for the United

States by Curtis, and has been found to be wholesome in Britain (Cooke).

A. strobiliformis, Fr. — Esculent (Berkeley; Cooke). United States (Curtis).

A. subdulcis, Pers.—Edible (Unger).

A. subocreatus, Cooke. — Sent, as is believed, from China to Singapore to be eaten (Cooke).

A. tessulutus, Bull.—Recorded as edible in the United States (Cooke).

A. tigrinus, Bull. (Syn. *Lentinus tigrinus*, Fr.; *A. Dunalii*, DC.)—Said by Cordier to be edible, and of agreeable taste and odor.

A. tortilis, Bull.—Called edible by Unger.

A. translucens, DC.—Called edible by Cordier.

A. ulmarius, Bull.—Found on the elm, the poplar, and the beech. Its taste and smell are agreeable (Badham). Is common not only in Britain, but also in North America, and is by some preferred to *A. ostreatus*. Although perfectly wholesome, there is not much flavor in it (Cooke). Edible; its flesh firm, compact, of an agreeable odor and savor (Cordier).

A. vaginatus, Bull.—Badham says it will be found inferior to but few agarics in flavor. Cordier calls it a delicate food.

A. violaceus, L.—Badham says a handsome fungus and edible.

A. virescens, Schoef. — The flesh is sweet and agreeable to the taste like a hazel nut (Kromb.). Its odor is very agreeable without being penetrating; its flavor is exquisite when cooked (Persoon). Eaten raw the flavor is sweet and pleasant, like a fresh hazel nut (Corda). Syn. *A. bifidus*, Bull.; *Russula eruginosa*, Pers. An exceedingly delicate fungus. It is eaten in Italy, and said to be eaten in France and England (Badham).

A. virgineus, Jacq.—Cordier says of an agreeable taste and feeble odor, eatable. Badham says *A. virgineus*, Wulf, is a small fungus of pleasant taste and disagreeable odor.

A. volemum, Fr.—Very delicious even when eaten raw, and celebrated from early times (Vries).

Boletus.

Boletus edulis, Berk.—This fungus, says Berkeley, is considered by most people an excellent article of food, and has sometimes been cultivated artificially in its native woods. It is a native of Europe, and is catalogued for North Carolina by Dr. Curtis, and for California

by Harkness & Moore. Badham says its tender and juicy flesh, and its delicate and sapid flavor, render it equally acceptable to the plain and the accomplished cook. It may be truly said to improve every dish of which it is a constituent. This is believed, says Cooke, to be the *suillus* eaten by the ancient Romans, who obtained it from Bithynia. This species is common in England, but as a rule does not seem to please the English palate. In Vienna and Hanover, cut into thin slices and dried, it is exposed for sale in every market. In Lorraine it is eaten under the name of Polish mushrooms. In the department of Gironde, in France, great quantities are preserved and sent annually to the Parisian markets, strung on thread and dried, as they are in Russia.

Large quantities of mushrooms are consumed throughout the world, but their general use we give under *Agaricus*. There are many species of *Boletus* which serve or may serve as food, collected in their wild state. In Australia the natives of Swan River Colony eat several species; two of the principal they call *numar* and *woorda*, and the latter Drummond thinks might be advantageously substituted in cultivation for the common mushroom, as it has the same flavor, and is much easier of digestion.

Among edible species are :—

B. æreus, Bull.—In Europe, edible according to Cordier.

B. æstivalis, Fr. (Syn. *Tubiporus æstivalis*, Paulet; *B. cepa*, Thou.)—This, according to Paulet, is among the most fragrant and delicious, as assuredly it is among the largest of the Boletus tribe (Mrs. Hussey). The flesh is firm, of a milky flavor when raw, and it is a more excellent species than *B. edulis*. It occurs in woodland pastures in Europe.

B. aurantiacus, Bull.—Said by Cordier to be edible.

B. badius, Fr.—Called edible by Cordier.

B. bovinus, Fr.—A fungus of heathery fir woods. It occurs in Europe, in the Carolinas (Curtis), and in California (Harkness & Moore). Cooke says the taste and smell is sweetish and agreeable. Krombholz, that it is much sought after in Europe as a dish, and is good when dried.

B. carinthiacus, Jacq.—Classed by Unger as edible.

B. castaneus, Fr.—Eaten in Europe, but Cooke says is of inferior flavor. It has a mild, pleasant taste when raw. Credited by Curtis to the Carolinas.

B. chrysenteron, Fr.—This species is said to afford very poor

eating, and some authors consider it injurious, but persons have been known to have eaten it (Cooke).

B. collinitus, Cooke.—Dr. Curtis of Carolina recognizes it as esculent, and adds that it has been pronounced delicious by some to whom he has sent it.

B. elegans, Fr. (Syn. *B. luteus*, Kromb.; *B. flavus*, Bolton, With., Fr.; *B. Grevillei*, Grev., Berk.)—Mrs. Hussey says the taste is pleasant. Corda calls it "excellent diet." Cordier says edible, but not delicate, the yellow flesh having feeble savor and fungus odor. Badham remarks that he has eaten it. Curtis catalogues it for North Carolina. It also occurs in California.

B. flavidus, Fr.—Stated to be edible by Curtis, of North Carolina.

B. fragrans, Vitt.—Found in woods under oaks. Cooke pronounces it esculent.

B. granulatus, L.—Eaten on the continent of Europe (Cooke), and has been eaten by Curtis in North Carolina.

B. hepaticus, DC.—Said by Unger to be edible.

B. impolitus, Fr.—Called esculent by Cooke.

B. kuruma, Sieb., of Japan, is called *kuruma* by the Ainos, and is edible. Siebold enumerates it as growing on *Quercus beroni* at Yeso.

B. lecuomelas, Fr.—Called edible by Curtis, in North Carolina.

B. luridus, Berk.—A suspicious species, but it has been known to have been eaten with impunity. Cooke says he should be sorry to repeat the experiment.

B. moschocaryanus, Rumph.—Eaten as a delicacy on the Bunda Islands (Unger).

B. Obsonium, Paul., a mushroom found in the woods in the South of France, is a good food (Cordier).

B. ovinus, Sch.—Called edible by Curtis of North Carolina.

B. Romano, Ottav.—Eaten in Rome (Badham).

B. saguarius, Rumph.—Eaten on the Bunda Islands as a delicacy (Unger).

B. scaber, Fr.—Common in Britain and on the continent of Europe. It presents two forms. The odor is slight, the taste subacid. It has an agreeable flavor when cooked. When dried it loses all odor, and is then insipid and unfit for food (Badham). A fresh specimen, says Mrs. Hussey, selected before the tubes

have changed color, will be found very agreeable boiled. Is eaten in France when young, says Cordier. Much inferior to *B. edulis*, says Cooke. Eaten by Curtis in North Carolina. Is found also in California.

B. subtomentosus, Fr.—Said to be very poor eating, and some authors have considered it injurious. Cordier says it is edible; Trattinneck, that it is eaten in Germany. Curtis catalogues it as edible in North Carolina.

B. versipellis, Fr. — Classed as edible by Curtis for North Carolina, and by Harkness & Moore for California.

Bovista.

More then one species of this fungus appear in the bazaars of India, as at Secunderabad and Rangoon (Cooke), and one species is commonly sold in the bazaars of the Deccan and Burma (Berkeley). They are commonly known as *puff-balls*, and are common in our fields, pastures, and woods.

Bovista nigrescens, Fr. — Said by Berkeley to be eatable when young, but apt to have an unpleasant taste when old. Cooke says it is eaten in the United States.

B. plumbea, Fr.—Easily known by its leaden hue when dry. Cooke says it is eaten in the United States, and is stated to furnish a very palatable dish. Cordier gives as synonyms, *Lycoperdon plumbeum*, Vitt., and L. *ardosiacum*, Bull., and says it is edible.

Clavaria.

Many of this genus of fungi afford excellent articles of food, but they are not much used in England, probably from the scarceness of the larger species (Berkeley). In the United States a large number are catalogued by Curtis as edible.

Clavaria amethystina, Bull., on the continent of Europe is preferred by some to all the other species, and is said to possess a very fine flavor (Cooke). Badham says simply, an edible fungus. Cordier says edible, and of a fine taste.

C. aurea, Schaeff.—Said by Cordier to be excellent eating. It is enumerated by Curtis as edible in the United States.

C. botrytis, Pers. — Edible and in common use in Carinthia according to Cordier. Cooke says common in the Vosges. Curtis mentions it as edible in the United States.

C. cinerea, Bull. — Called in France *pied de coq*, *gallinole*, etc. In Italy *ditola rosea*, and in both these countries it is eaten (Cooke). Badham calls it an esculent species. Cordier says eatable, but injurious if eaten in quantity.

C. coralloides, L. (Syn. *C. alba*, Pers.)—Said by Cordier to be edible. Cooke says much esteemed in Germany, Italy, Switzerland, etc. Badham says of most excellent edible quality.

C. crispa, Jacq. (Syn. *Sparassis crispa*, Fr.)—Said by Cordier to be eaten in Alsace.—Said by Cooke to be very large, resembling in size, and somewhat in appearance, a cauliflower. In Austria it is fricasseed with butter and herbs, and is excellent eating. Catalogued by Curtis as edible in the United States.

C. cristata, Pers.—Catalogued as edible in the United States by Curtis, and by Harkness & Moore.

C. fastigiata, L. (Syn. *C. pratensis*, Pers.)—Called edible by Cordier. Is also mentioned for California by Harkness & Moore. In Germany it is eaten under the name of *ziegenbart* (goat's beard), according to Roques. *C. fastigiata*, DC., is found in the Carolinas, and is called edible by Curtis.

C. flava, Pers. (Syn. *C. coralloides*, Bull.)—Said by Cordier to be excellent to eat, and much sought for in Germany. Curtis says edible in the United States, and Harkness & Moore class *C. flava*, Schaeff., as edible in California.

C. formosa, Pers.—Cordier says its white flesh is edible, and of a delicate taste. It is catalogued as edible for the United States by Curtis.

C. (*Sparassis*) *laminosa*, Fr.—Said by Cordier to be edible and of excellent taste. Is listed by Curtis as edible in the United States.

C. macropus, Curt.—Edible in the United States (Curtis).

C. muscoides, Curt., of the United States, edible (Curtis).

C. pistillaris, L. — Eaten in Poland, Russia, and Germany (Cordier).

C. pyxidata, Curtis.—Edible in the United States (Curtis).

C. rubella, Schaeff.—Edible, according to Unger.

C. rufescens, Berk. — Sold in Hanover, where it is esteemed (Berkeley).

C. rugosa, Bull.—A common British species, also found in the United States. Edible (Cooke). Badham says an esculent species. It is however too small to repay collecting.

C. stricta, Pers.—Edible, as Unger states.

C. subtilis, Curt.—Edible in the United States (Curtis).

C. tetragona, Curt.—Edible, according to Curtis, in the United States.

C. uliginea, Curt.—Edible in the United States (Curtis).

C. vermicularis, Berk. — Said by Berkeley to be extremely delicate when dressed.

C. vermiculata, Scop.—Called edible by Cordier.

Craterellus.

Craterellus clavatus, Fr. (Syn. *Gomphus truncatus*, Pers.)—A fungus classed by Cordier as edible.

C. cornucopioides, Pers. (Syn. *Peziza cornucopioides*, L.)—Stated by Cordier to be edible.

Cyttaria.

Cyttaria Berteroi, Berk.—Was seen by Darwin in Chili, and is eaten occasionally, but apparently not so good as *C. Darwinii* (Cooke).

C. Darwinii, Berk.—A globular bright yellow fungus of Terra del Fuego, found growing in vast numbers on the birch trees, and in its tough and mature state collected by the women and children to be eaten uncooked. It has a mucilaginous, slightly sweet taste, with a faint smell like that of mushrooms. With the exception of a few berries, chiefly of a dwarf arbutus, the natives eat no vegetable food besides this fungus (Darwin).

C. Gunnii, Berk.—Abounds in Tasmania, and is held in repute amongst the settlers for its esculent properties (Cooke).

Helvella.

Some few species of this genus of fungi are recorded as eaten.

Helvella Californica, H. & M.—Catalogued for California as edible by Harkness & Moore.

H. crispa, Fr. (Syn. *H. leucophæa*, Pers.; *H. Mitra*, Bull.)—Said by Cordier to be edible. Berkeley says esculent, and when well stewed forming an acceptable dish. Cooke says equal to the morel in taste. Badham says of an agreeable odor, and of a general resemblance to the morel in taste. Occurs in California, according to Harkness & Moore, and edible.

H. elastica, Bull. — Called edible by Unger. Cordier says esculent, but of too small a size to be much sought after.

H. esculenta, Pers. (Syn. *Gyromitra esculenta*, Fr.)—Said by Badham to be esculent, and of agreeable odor. Berkeley says it is much eaten on the continent, but in some conditions appears to be dangerous. Harkness & Moore catalogue it as edible in California.

H. gelatinosa, Bull. (Syn. *Leotia lubrica*, Pers.)—Said by Cordier to be eatable, but of small size.

H. grandis, Cumino.—Eaten in France (Cordier).

H. infula, Fr.—A large species, not British, but extends to North America. Edible (Cooke).

H. lacunosa, Afz.—Cordier says eaten in Provence and in Piedmont. Berkeley says when well stewed an acceptable dish. Badham classes it as inferior to *H. crispa*, but esculent. Cooke says an excellent substitute for the morel, and occurs in Carolina.

H. Monachella, Fr.—Called edible by Unger.

H. ramosa, Schaeff.—Classed as edible by Unger.

H. sulcata, Afz. (Syn. *Gyromitra esculenta*, Fr.) — Said by Cooke to be rarely found in Britain, but more common on the continent, where it is held in esteem.

Hydnum.

The species furnish, says Unger, only an unpalatable nutriment. Quite a large number are, however, mentioned as edible, and some are greatly praised by experts.

Hydnum Auriscalpium, L.—One of the most elegant fungi of Britain, not uncommon on fir cones (Berkeley). Cordier says it is eaten in Gascony and Tuscany, but is a food little worthy of being sought for.

H. caput-Medusæ, Bull.—Occurs on trunks of trees. It is common in Italy, and in parts of Austria, where it is reckoned among the edible species (Cooke). Cordier says frequently eaten in Italy, and of agreeable odor and savor. It occurs in the United States (Cooke).

H. coralloides, Scop.—Occurs on decayed forest trees. Cordier gives as a synonym, *H. ramosum*, Bull., and calls it a delicate food. It occurs in Germany, Switzerland, and France, and is esteemed esculent (Cooke). In California it grows on oaks, and

looks like a large white mass of coral, and when young may be safely eaten (Moore).

H. Erinaceum, Bull.—Eaten in Germany and France (Cooke).

H. imbricatum, L. (Syn. *H. cervinum*, Pers.)—Called edible by Cordier. Mueller says it is a wholesome mushroom of delicious taste. Cooke says it is eaten in Germany, Austria, Switzerland, France, and elsewhere. It occurs on the ground in pine woods in Carolina, and is esculent.

H. infundibulum, Swartz. (Syn. *H. fusipes*, Pers.)—Classed as edible by Cordier.

H. lævigatum, Swartz. — Eaten in Alpine districts (Cooke). It is called edible in the United States by Curtis.

H. repandum, L.—Affords, says Berkeley, an excellent article of food if carefully dressed, and is scarcely exceeded in delicacy by any fungus. The general use made of this fungus throughout France, Italy, and Germany, leaves no doubt, says Roques, of its good qualities. Known in France as *eurchon*, *rignoche*, and *arresteron*. In the Vosges as *barbe de vache* and *pied de mouton*. The flesh is firm and white, rather hot to the taste when raw, but mild when cooked (Cooke). The smell like that of horseradish (Badham). Cordier says edible, and in common use in France. Occurs in California, and Moore says that stewed slowly it is excellent.

H. rufescens, Schaeff.—Called edible by Cordier. Mentioned by Curtis as one of the edible species of the United States.

H. subsquamosum, Batsch. (Syn. *H. badium*, Pers., *H. squamosum*, Bull.)—Called edible by Cordier. Mentioned, also, as edible, by Curtis, in the United States.

H. violaceus, Alb. et Schw.—Said by Cordier to be edible, yet little sought for food, notwithstanding its taste and agreeable odor.

Hygrophorus.

Few, if any, says Berkeley, are admitted to English kitchens, though no doubt some are wholesome.

Hygrophorus chrysodon, Curtis. — Enumerated for the United States as esculent by Curtis.

H. niveus, Fr.—Common in mossy pastures in England. When found large enough, may be eaten, says Cooke.

H. pratensis, Fr. — Perfectly wholesome, and is sometimes eaten in France, Germany, Bohemia, and Denmark (Cooke). It

is included among the esculent species of the United States by Curtis.

H. virgineus, Fr., though small, is well worth the trouble of collecting. Except that it is occasionally eaten in France, it does not enjoy much reputation abroad (Cooke).

Lactarius.

The species of this genus are often exceedingly acrid and dangerous, yet this class of fungi seem to be eaten almost indiscriminately in Russia, when preserved in vinegar and salt, in which condition they form an important item in the kinds of food allowed in their long fasts. One or two species have been found in the Himalayas, but Europe and North America appear to be their principal habitat.

Lactarius angustissimus, Lasch.—Esculent in the United States, according to Curtis.

L. deliciosus, Fr. — Found in the markets of Paris, Berlin, Prague, and Vienna, and is esteemed in nearly all the countries of Europe (Cooke). *L. deliciosus*, L., is credited as esculent in California by Harkness & Moore.

L. insularis, Fr.—Esculent in the United States, according to Curtis and Harkness .& Moore. It is not reputed edible in Britain (Cooke).

L. piperatus, Fr.—Classed in England with dangerous, sometimes poisonous, species; but Curtis says it is cooked and eaten in the United States. Harkness & Moore list it as edible in California.

L. subdulcis, Fr.—Esculent in the United States, according to Curtis, but not reported as edible in Britain (Cooke).

L. volemus, Fr. — An esculent species, celebrated from early times, and is said to resemble lamb's kidney. Berkeley says it is mild, and forms an excellent article of food. Called esculent in South Carolina by Curtis, and in California by Harkness & Moore.

Lycoperdon.

The species are produced abundantly in almost every country, but are so variable that it is often very difficult to distinguish them (Berkeley). Badham says all those more or less spherical white funguses with a membranaceous covering, and filled when young with a white, compact, homogeneous pulp, which we call *puff-balls*,

are good to eat, and are to be compared to sweetbreads for the rich delicacy of their unassisted flavor. More than one species appear in the bazaars of India, as at Secunderabad and Rangoon (Cooke).

Lycoperdon ardosiacum, Bull. (Syn. *Bovista plumbea*, Pers.)—Given by Cordier as edible.

L. Bovista, L.—Badham says no fungus requires to be eaten so soon after gathering as this; a few hours will destroy the compactness of the flesh, and change the color. Berkeley says that when quite young, it is one of the best of fungi, if cut in slices and fried.

L. giganteum, Fr.—This puff-ball is, when well manipulated, an excellent addition to the breakfast table. It is especially esteemed in Italy (Cooke). *L. giganteum*, Batsch, is classed among the edible fungi of California by Harkness & Moore.

Marasmius.

Marasmius oreades, Fr., the Fairy-ring champignon, enjoys, says Cooke, a good reputation, but local. Though small, it is one of the most delicious of edible fungi (Cooke). Berkeley says one of our very best edible fungi. It is pronounced esculent by Curtis in Carolina, and in California by Harkness & Moore.

M. scorodonius, Fr. — Consumed in Germany, Austria, and other countries of the continent of Europe, where, perhaps, its garlic odor has been one of its recommendations as an ingredient in sauces. It is called, in Germany, *lauchschwamme* and *hagyma gomba* (Cooke). It is enumerated for South Carolina by Curtis.

Morchella.

The morels occur in various parts of the world, but the greater part of those used in Britain come from Germany. In Cashmere a large quantity is collected. They are much used by cooks to flavor gravies, and dressed in various ways make an excellent dish.

Morchella bohemica. Kromb.—Eaten in Bohemia (Cooke).

M. Caroliniana, Bosc., of the Southern United States, is edible (Cooke).

M. conica, Pers. — Eaten, according to Unger. It occurs in California (Harkness & Moore).

M. costata, Pers. — Less esteemed than the edible morel, but alimentary, and found in Italy (Cordier).

M. crassipes, Pers., the gigantic morel, is esculent (Cooke).

M. deliciosa, Fr.—Eaten in Java, and in Cashmere (Cooke).

M. esculenta, Pers.—The common morel. Every one knows the morel, says Badham, that expensive luxury which the rich are content to procure at great cost from the Italian warehouses, and the poor are fain to do without. It is held in very high estimation in Britain, says M'Intosh, but is little cared for in the Roman markets. Berkeley says the greater part of the English supply comes from Germany. It is found, according to Curtis, in South Carolina; and in California, according to Harkness & Moore.

M. gigaspora, Cooke.—Eaten in Cashmere (Cooke).

M. rimosipes, DC.—Occurs in France and Bohemia, and is esculent (Cooke).

M. semi-libera, DC. — Esteemed in France, Italy, Germany, England, etc., says Cooke. Badham says it is much less sapid than the morel, but esculent. Berkeley says it has a bad reputation, and requires some caution in its use.

Mylitta.

In the Neilgherries, South India, a substance is occasionally found which is allied to the "native bread" of southern latitudes. It is found at an elevation of 5,000 feet. The natives call it "a little man's bread," in allusion to the tradition that the Neilgherries were once peopled by a race of dwarfs. It is an underground fungus, of the genus Mylitta. Mr. Scott says it seems very closely allied to, if really distinct from, the so called native bread of Tasmania (Cooke).

Mylitta australis, Berk., the native bread of Australia, is a large, subglobose fungus, sometimes many inches in diameter, with a black skin which chips off in little fragments, enclosing a veined white mass which at first is soft, and has a peculiar acid smell, but when dry becomes extremely hard and horny. It is eaten by the natives (Berkeley).

Pachyma.

Pachyma Cocos Fr. (Syn. *Lycoperdon solidum*, Gron.)—The Tuckahoe. This curious production, although often included with fungi, is not a fungus, as is proved by the examinations made by Berkeley. It is eaten in the United States, and, as it consists almost entirely of pectic acid, it is sometimes used for making jelly (Cooke). It is a large, hard-crusted fungus, says Pickering, growing underground in sandy pine barrens along the alluvial

Atlantic border of North America. It was eaten from early times by the Seminoles. It is mentioned by Fontaneda: the *okeepenauk*, a round root as large as a man's head found by Hariot, eaten raw by the natives on the Roanoke, may also be compared. The *tockowhough*, of the natives on James River, is enumerated by Strachey, and described by Schweinitz as observed by him in Carolina, and is known to grow as far North as 40° in peninsular New Jersey.

Sprigley, in 1669, mentions it in Virginia as eaten by the natives, under the name of *tuckaho*, and of late years it is mentioned as occurring in Kansas and Arkansas. Hanbury says it is called *Fuh-ling* in China, and made into edible cakes which are frequently sold in the streets.

P. Hoeln, Fr.—A truffle which Mueller says occurs in China, particularly in the province of Souchong, and its flavor is most agreeable.

Paxillus.

Paxillus giganteus, Fr.—Catalogued as edible in California by Harkness & Moore.

P. involutus, Fr., though very common in Europe, is not eaten, yet it is included by Dr. Curtis with the esculent species of the United States (Cooke).

Peziza.

Peziza Acetabulum, L. — Said by Badham to be an utterly insipid fungus, depending entirely for flavor upon the sauce in which it is served. It is called esculent by Cordier and Cooke, and is found in Carolina.

P. aurantia, Œd. (Syn. *P. coccinea*, Bull.)—Classed as eatable by Cordier.

P. badia, Pers.—Called eatable by Cordier.

P. cochleata, L. — Eaten in the north of France (Cordier). *P. cochleata*, Huds., is gathered in Northamptonshire, England, as a substitute for morels (Cooke).

P. leporina, Batsch.—Eaten in France (Cordier).

P. macropus, Pers. (Syn. *P. stipata*, Bull.)—Eaten by the poor in France (Cordier).

P. onotica, Pers., a species of remarkable beauty, is eatable (Cordier).

P. venosa, Pers.—Has a nitrous odor and fungoid flavor, but is edible (Cooke).

P. vesiculosa, Bull.—Edible. Its savor is feeble and agreeable (Cordier).

PHALLUS.

Phallus mokersin, Berk.—In China the volva is eaten (Berkeley).

POLYPORUS.

The species vary much in point of substance, a few being so soft as to be esculent, and others hard and woody or corky.

Polyporus Berkeleii, Fr. — Intensely pungent when raw, but when young and before the pores are visible, it may be eaten with safety, all its pungency being dissipated by cooking. It occurs in the United States (Cooke).

P. confluens, Fr. (Syn. *P. artemidorus*, Lenz.)—Eaten about Nice. Its flesh, says Cordier, is pale; its savor a little sharp. In the United States Dr. Curtis considers it superior eating.

P. corylinus, Mauri.—Grows upon the old trunk of the cob-nut tree. It is excellent for food, and is cultivated artificially, the corylus logs being sold in the Roman markets, and then being watered and put by in a cellar (Badham).

P. cristatus, Fr. — Enumerated by Curtis as edible in the United States.

P. frondosus, Schrank. — Recommended highly as food by Paulet. The people of the Vosges eat it, and it is sold in the Roman markets. Vittadini has not included it among the esculent fungi in his work, and Persoon does not recommend it on account of its toughness.

P. fuligineus, Fr. (Syn. *Boletus polyporus*, Bull.)—Called edible by Cordier.

P. giganteus, Fr.—Very large and leathery when old, esculent when young. On the continent of Europe its esculent qualities are known and appreciated (Cooke). Occurs also in Carolina, and termed esculent by Curtis.

P. intybaceus, Fr. (Syn. *P. frondosus*, Berk.)—No fungus, says Mrs. Hussey, is more esteemed as an article of food than this. Eaten raw, the taste is very agreeable, but it leaves a slight astringency upon the palate. Cooke says it sometimes attains the weight of forty pounds, and is esculent when young and all agree that it is excellent.

P. leucomelas, Curt.—In the United States called edible by Curtis.

P. ovinus, Berk.—Said by Berkeley to afford a grateful food. It is enumerated by Curtis as esculent in the United States.

P. poripes, Fr.—When raw, tastes like the best chestnut or filbert, but is rather too dry when cooked, says Curtis. Is found in the United States.

P. squamosus, Fr.—The edible qualities cannot be declared first rate. Mrs. Hussey says one might as well think of eating saddle-flaps. Young specimens, before they have acquired the leathery consistency, would serve for an occasional meal. In this stage they are prepared for the table in some parts of Europe (Cooke).

P. sulfureus, Fr. (Syn. *P. citrinus*, Pers.)—Collected in the environs of Nice and served as a food, but its quality is inferior (Cordier). In the United States Dr. Curtis considers its eating just tolerably safe, but not to be coveted.

P. tuberaster, Pers.—Confined to Naples, and is procured by watering the *pietra funghaia*, or fungus stone, a kind of tufa, in which the mycelium is imbedded (Cooke). It is cut into slices, boiled several times in milk, then beaten out with a flat board and fried in oil (Persoon).

P. umbellatus, Fr.—Stated by Fries to be esculent. Cordier says it is employed as food in Germany and in Sweden.

Polysaccum.

A species of puff-ball which inhabit sandy tracts in warm countries.

Polysaccum crassipes, DC. (Syn. *Scleroderma tinctorium*, Pers.)—Said by Cordier to be eaten in Italy.

Russula.

Some of this species of fungus are extremely acrid, while others are mild and esculent. They are much esteemed on the continent of Europe, though seldom used in England.

Russula adusta, Fr.—Catalogued as edible in the Carolinas and in California (Curtis; Harkness & Moore).

R. alutacea, Fr.—Said by Cooke to be by no means despised as a food, although Badham has placed it amongst species to be

avoided. It is marked as esculent in the Carolinas by Curtis, and in California by Harkness & Moore.

R. decolorans, Fr.—Said to be esculent by Cooke.

R. heterophylla, Fr. — Common in woods. Vittadini pronounces it unsurpassed for fineness of flavor. Roques gives also an account in its favor as consumed in France. Harkness & Moore mention it as edible in California.

R. lactea, Fr.—Cooke says found in the United States and esculent.

R. ochroleuca, Curtis.—Edible in the United States (Curtis).

R. vesca, Fr.—Pronounced esculent by Cooke.

R. virescens, Pers.—In France this species is said to be preferred by some to the ordinary mushroom, and is known in the south by the name of *verdette*. It is common in Languedoc, where it is collected (Cooke). Vittadini and Rogers speak well of it, and the peasants of Milan toast it over embers, and eat it with a little salt.

Tremella.

Tremella foliacea, Curtis.—Catalogued as edible in Carolina by Dr. Curtis.

T. mesenterica, Pers. — Said by Cordier to be eaten in Germany as a morel. It is catalogued by Curtis as edible in the United States, and *T. mesenterica*, Retz, is given by Harkness & Moore as edible in California.

Tuber.

In the market of Apt, France, alone, about 3,500 lbs. of truffles are exposed for sale every week during the height of the season, and the quantity sold during the winter reaches upwards of 60,000 lbs., whilst the department of Vaucluse yields annually upwards of 60,000 lbs. (Cooke). In England truffles are sought for almost exclusively by dogs of a particular breed; but on the continent of Europe sows are used for the same purpose, and they are raked up by persons who have a peculiar knack in recognizing the spots where they are likely to grow. In Poitou it is a common practice to enclose a space upon the downs, sowing it with acorns, and when the oaks attain size enough to shade the ground, there is sure to be a crop of truffles. In the South of France truffles have

been procured in woods by watering the ground, previously prepared, with water in which the parings had been steeped (Berkeley).

Tuber æstivum, Vitt. — The truffle most commonly collected in Britain (Cooke). Cordier says it is *T. albidum*, Caesalp., and is less delicate in taste than the *T. cibarium* and *T. brumale*.

T. albidum Fr.—Occurs with *T. æstivum*, but is smaller and less agreeable in taste, according to Mueller.

T. album, Bull.—Said by Unger to be edible.

T. brumale, Mich.—The Winter truffle. Esculent (Cooke).

T. cibarium, Sibth.—The Common truffle, or Black truffle of middle and South Europe. When full grown it rarely exceeds the size of a large walnut. It grows from two to ten inches under the ground (M'Intosh). The European names for the truffle are, in French *truffe;* in German *truffel;* in Dutch *aardnoot;* in Italian *tartufo nero*. It seems to have been the *udnon* of Dioscorides.

T. leonis, in Algeria occupies, says Figuier, the place of all the truffles of Western Europe.

T. magnatum, Pico. (Syn. *T. griseum*, Pers.)—Cordier describes this species as delicate and very fine. Cooke says, a truffle eaten in France. Mueller says the Grey truffle is one of the most esteemed. Thompson calls it the Piedmontese truffle, the most celebrated variety, occurring abundantly in the mountains of Piedmont, and sold at an enormous price.

T. melanospermum, Vitt. (Of France, Germany, and Italy.)—Thompson says it is the truffle of the Paris markets, is richly scented, and also greatly superior in flavor to the common sort.

T. mesentericum, Vitt. (Syn. *T. cibarium*, Corda.) — Said by Cordier to have a strong odor and savor, and to be edible, but little sought for.

T. moschatus, Bull. (Syn. *Melanogaster variegatus*, Tul.)—Used in the west of England as a substitute for truffles, under the name of Red truffle. It has, however, none of the delicate aroma of the real truffle (Berkeley). Cordier says it is edible, but not delicate. Harkness & Moore catalogue it as an edible fungus of California.

T. niveum, Desf. (Syn. *Terfezia Leonis*, Tul.) — Not equal, says Berkeley, to the *T. æstivum*, though it has of late attracted notice in Algiers from its abundance. Cordier says, eaten by the Arabs. Cooke, that it is used as an esculent in Damascus.

T. rufum, Pico. — Called by Mueller the Red truffle. Common, especially in vineyards, and much used for food.

Verpa.

Verpa digitaliformis, Pers.—Vittadini states that it is sold in the Italian market, although only to be recommended when no other esculent fungus offers, which is sometimes the case in spring. Badham says this fungus is not to be despised as food when we cannot get better, nor to be eaten when we can.

DATE OF FLOWERING OF TREES AND SHRUBS, IN EASTERN MASSACHUSETTS, 1881.

BY JOHN ROBINSON, PROFESSOR OF BOTANY AND VEGETABLE PHYSIOLOGY TO THE SOCIETY, SALEM, MASS.

April 14, Corylus Avellana.
16, Corylus Americana.
19, Epigæa repens (for sale on Boston streets).
Alnus glutinosa.
Alnus incana.
25, Salix Smithiana.
Salix ferruginea.
Salix caprea.
Salix acuminata.
Salix discolor.
Salix Forbesiana.
Salix supularis.
Salix "Kilmarnock."
Dirca palustris.
Taxus baccata, *var.* Canadensis.
Erica carnea.
Thuja occidentalis.
Rhododendron Dahuricum.

April 25, Rhododendron chrysanthum.
Larix Europæa.
Ulmus Americana.
Populus alba.
27, Salix viminalis.
Cornus mascula.
Shepherdia argentea.
28, Populus balsamea, *var.* candicans.
Populus tremula.
May 1, Populus tremuloides.
3, Salix humilis.
4, Magnolia conspicua.
Forsythia viridissima.
Forsythia Fortunei.
Ulmus montana.
5, Ulmus campestris.
Acer platanoides.
Andromeda Japonica.
Forsythia suspensa
Larix leptolæpis.
Laurus Benzoin.
6, Populus grandidentata.
Populus dilatata.
7, Salix livida, *var.* occidentalis.
Cassandra calyculata.
Myrica Gale.
8, Salix tristis.
Salix alba.
Salix fragilis.
Larix Americana.
Ribes rubrum.
9, Prunus triloba.
Magnolia Soulangeana.
Amelanchier Canadensis.
Chamæcyparis (Retinospora) obtusa.
10, Acer saccharinum.
Lonicera cærulea.
Lonicera ciliata.
Salix candida.
Prunus domestica.

May 10, Buxus sempervirens.
Berberis repens.
Lonicera ciliata.
Andromeda floribunda.
11, Ribes aureum.
Ribes cereum.
Ostrya Virginica.
Spiræa Thunbergii.
Salix tenuifolia.
Salix cordata.
Salix triandra.
Salix purpurea.
Salix Andersoniana.
Negundo aceroides.
Betula lutea.
Thuja occidentalis.
Abies balsamea.
Amelanchier Canadensis, *var.* oblongifolia.
Fraxinus Americana.
Fraxinus excelsior.
Fraxinus pubescens.
Nemopanthes Canadensis.
Rhamnus alnifolia.
Prunus Pennsylvanica.
14, Fagus sylvatica.
Betula lenta.
Cercis Japonica.
Prunus Americana.
Berberis Aquifolium.
Vaccinium Pennsylvanicum.
Picea alba.
15, Daphne cneorum.
Rhododendron (Cunningham's White).
Pirus (Malus) floribunda.
Acer Pseudo-Platanus.
Quercus coccinea.
Rhododendron Rhodora.
Quercus rubra.
Pirus Malus.
Andromeda polifolia.

May 15, Prunus Persica.
Prunus domestica.
Prunus Armeniaca.
16, Ledum palustre.
Ledum latifolium.
Ledum thymifolium.
Lonicera cærulea.
Prunus Cerasus (Double, White and Pink).
Acer cissifolium.
Syringa vulgaris.
Rubus deliciosus.
Rhodotypos kerrioides.
Kerria Japonica.
Sambucus pubens.
Spiræa prunifolia.
Spiræa callosa.
Æsculus glabra.
Cercis Canadensis.
Prunus domestica (Double Plum).
17, Celastrus Orixa.
Acer Pennsylvanicum.
Cornus florida (bracts opening).
Cratægus coccinea.
Ribes × Gordoni.
Prunus Hallii.
Hydrangea Japonica.
Celtis Audibertiana.
Ribes palmatum.
Abies Nordmanniana.
19, Picea excelsa.
22, Æsculus Hippocastanum.
Prunus (Weeping Cherry).
Wistaria Sinensis.
Juglans cinerea.
Quercus tinctoria.
Pinus sylvestris.
Picea Cephalonica.
Picea nigra.
Abies Alcoquiana.
Pinus Banksiana.

May 22, Pirus baccata.
Pirus arbutifolia.
Pirus Toringo.
Rhododendron nudiflorum.
Staphylea Bumalda.
Staphylea trifoliata.
Spiræa oblongifolia.
Spiræa crenata.
Spiræa lævigata.
Spiræa chamædrifolia (S. confusa of gardens).
Spiræa obovata, *var.* hypericifolia.
Amelanchier vulgaris.
Quercus Daimio.
Quercus dentata.
Prunus maritima.
Prunus pumila.
Euonymus alatus.
Ribes Grossularia, *var.* Uva-crispa.
Ribes sanguineum.
Ribes floridum.
Ribes prostratum.
Forestiera acuminata.
Syringa Persica.
Syringa vulgaris, *var.* major.
Caragana arborescens.
Prunus nana (Double Almond).
Prunus Persica (Double Peach).
Cratægus coccinea.
Hippophae rhamnoides.
Lonicera Tartarica.
Berberis Thunbergii.
Vaccinium corymbosum.
Betula alba, *var.* pubescens.
Betula alba, *var.* Dalecarlica.
Betula fruticosa, *var.* Gmelini.
Ribes saxatile.
Ribes multiflorum.
Celtis occidentalis, *var.* crassifolia.
Celtis Tournefortii.
24, Ribes rotundifolium.

May 24, Ribes nigrum.
Ribes Cynosbati.
Akebia quinata.
Pterocarya fraxinifolia.
Carpinus Duanensis.
Æsculus flava.
25, Platanus occidentalis.
28, Magnolia acuminata.
Magnolia cordata.
Magnolia Fraseri.
Buckleya distichophylla.
Leiophyllum buxifolium.
June 1, Syringa Persica, *var.* laciniata.
Jamesia Americana.
Pinus rigida.
Berberis vulgaris.
Acer Tartaricum, *var.* Ginnala.
Carya alba.
Carya porcina.
Juglans nigra.
Rhododendron calendulaceum.
Cratægus Oxycantha (Single and Double, Red and White.)
Spiræa trilobata.
Magnolia Umbrella.
2, Viburnum Opulus.
Rhododendron ponticum.
Rhododendron (Azalea) mollis.
Rhododendron (garden varieties.)
Viburnum lantanoides.
Xanthoceras sorbifolia.
Picea pungens.
Laburnum vulgare.
Quercus alba.
7, Quercus glabra.
Rosa alpina.
Rosa alpina, *var.* glandulosa.
Rosa spinosissima.
Rosa montana.
Vaccinium ovatum.

June 7, Lonicera spinosa.
Menziesia ferruginea.
Rubus cratægifolius.
11, Philadelphus coronarius.
Robinia Pseudacacia.
Nevieusia Alabamensis.
13, Juglans Sieboldii.
Neillia Mantsurica.
Berberis Sinensis.
Berberis emarginata.
Berberis Canadensis.
Euonymus pulchellus.
Euonymus Europæus.
Rosa rugosa.
Lonicera involucrata.
Lonicera oblongifolia.
Viburnum plicatum.
Viburnum pubescens.
Viburnum Lentago.
Cornus circinata.
Cornus stolonifera.
Andromeda ligustrina.
Andromeda Catesbæi.
Elæagnus umbellatus.
Cornus alternifolia.
Cratægus Crus-galli.
Liriodendron tulipifera.
15, Chionanthus Virginica.
Spiræa callosa, *var.* Indica.
Philadelphus coronarius, *var.* Shrenkii.
Philadelphus coronarius, *var.* ledifolius.
Rosa blanda, *var.* cropularia.
Rosa acicularis.
Clematis Mandshurica.
Potentilla Salesovii.
Vinitoxicum (from Japan.)
Syringa Josikæa.
16, Pinus Cembra.
Philadelphus inodorus.
Euonymus alatus.

June 18, Clematis coccinea.
Acer Tartaricum.
Ptelea trifoliata.
Acer spicatum.
Cratægus parviflora.
Rosa multiflora.
Vaccinium stamineum.
19, Rhus Toxicodendron.
Kalmia angustifolia.
Philadelphus hirsutus.
Celastrus umbellatus.
Elæagnus parviflora.
Gymnocladus Canadensis.
Rhus cotinus.
Rhododendron brachycarpum.
Styrax Japonica.
Magnolia, *var.* Thompsoni.
Philadelphus coronarius, *var.* variegatus.
20, Cladrastis tinctoria.
Vitis æstivalis.
Syringa Amurensis.
Vaccinium erythrocarpum.
Menziesia globularis.
Lonicera hirsuta.
Lonicera flava.
Lonicera caprifolium.
Viburnum dentatum.
Cornus alba.
Cornus paniculata.
Neillia opulifolia.
Tamarix Gallica.
Viburnum acerifolium.
22, Menziesia polifolia.
Kalmia angustifolia, *var.* rubra.
Gaylussacia dumosa.
Cocculus Japonica.
Tamarix tetrandra.
Vitis Labrusca.
Gaultheria Shallon.
Colutea haleppica.

June 22, Rosa canina.
Celastrus punctatus.
Rosa alba.
Rosa rubifolia.
Rosa Pugetii.
Aralia pentaphylla.
Euonymus Americanus.
Rosa mollissima.
Rubus villosus, *var.* flore-pleno.
Rosa Beggariana (of gardens).
Andromeda mariana.
Erica tetralix.
Phellodendron Amurense.
27, Magnolia glauca.
Philadelphus grandiflorus.
Sambucus Canadensis, *vars.* aurea, variegata, and laciniata.
Gleditschia triacanthos.
Deutzia crenata (single and double).
28, Actinidia polygama.
29, Viburnum nudum.
30, Rhododendron maximum,
Andromeda pulverulenta.
Cytisus nigricans.
Cytisus capitatus.
Ligustrum vulgare.
Lonicera sempervirens.
Rosa rubiginosa.
July 2, Sambucus Canadensis (type).
Tilia Europæa.
Itea Virginica.
Rubus frondosus, *var.* laciniatus.
Euonymus atropurpureus.
Ceanothus Americanus.
Lonicera Japonica (Hallii).
Halimodendron Japonicum.
4, Rhus typhina.
Lonicera brachypoda.
Rubus thyrsiflorus.
Rubus cordifolius.

July 6, Castanea vulgaris, *var.* Americana.
10, Rhododendron viscosum.
Spiræa salicifolia.
11, Cladrastis Amurensis.
15, Cornus sericea.
Rosa setigera.
Clematis crispa.
Sambucus Ebulus.
Spiræa Douglasii.
Spiræa ariæfolia.
Spiræa callosa, *var.* alba (second flowering).
Clematis angustifolia.
Catalpa Kæmpferi.
Hydrangea arborescens.
Hydrangea radiata.
Castanea pumila.
Fallugia paradoxa.
Rubus phænicolasius.
16, Catalpa bignonioides.
22, Tilia Americana.
Rhus glabra.
Rhus glabra, *var.* laciniata.
Wistaria Sinensis (second flowering).
Tecoma radicans.
25, Kœlreuteria paniculata.
Pavia macrostachya.
29, Tamarix Chinensis.
Hypericum Kalmianum.
Buddleia curvifolia.
Spiræa lævigata.
Hypericum patulum.
Aug. 2, Cephalanthus occidentalis.
Clematis Flammula.
Hypericum aureum.
Hypericum proliferum.
Vitis aconitifolia.
Vitis heterophylla.
Spiræa millifolium.
Amorpha canescens.
Erica vagans.

Aug. 2, Calluna vulgaris.
4, Spiræa tomentosa.
6, Hibiscus Syriacus.
8. Aralia Chinensis.
14, Hydrangea paniculata.
Oxydendrum arboreum.
Sept. 12, Callicarpa gracilis.
Vitex Agnus-Castus.
Oct. 21, Hamamelis Virginica.

Massachusetts Horticultural Society.

OFFICERS AND STANDING COMMITTEES FOR 1882.

President.

FRANCIS B HAYES, of Boston.

Vice-Presidents.

JOHN B. MOORE, of Concord.
JOHN CUMMINGS, of Woburn.
BENJAMIN G. SMITH, of Cambridge.
CHARLES H. B. BRECK, of Boston.

Treasurer and Superintendent of the Building.

GEORGE W. FOWLE, of Boston.

Secretary and Librarian.

ROBERT MANNING, of Salem.*

Recording Secretary.

ROBERT MANNING, of Salem.

Professor of Botany and Vegetable Physiology.

JOHN ROBINSON, of Salem.

Professor of Entomology.

SAMUEL H. SCUDDER, of Cambridge.

Standing Committees.

Executive.

THE PRESIDENT, FRANCIS B. HAYES, CHAIRMAN.
THE EX-PRESIDENTS, MARSHALL P. WILDER, CHARLES M. HOVEY, JAMES F. C. HYDE, WILLIAM C. STRONG, FRANCIS PARKMAN, WILLIAM GRAY, JR.; CHAIRMAN OF FINANCE COMMITTEE, H. H. HUNNEWELL; F. L. AMES, CHARLES H. B. BRECK, JOHN C. HOVEY, HENRY P. WALCOTT.

* Communications for the Secretary, on the business of the Society, should be addressed to him at Horticultural Hall, Boston.

Finance.

H. HOLLIS HUNNEWELL, Chairman.

FRANCIS B. HAYES. F. L. AMES.

Publication and Discussion.

BENJAMIN G. SMITH, Chairman.

JOHN B. MOORE. WILLIAM H. HUNT.

Establishing Prizes.

CHAIRMAN OF COMMITTEE ON FRUITS, Chairman.
CHAIRMEN OF COMMITTEES ON FLOWERS, VEGETABLES, AND GARDENS, *EX OFFICIIS;* C. M. ATKINSON, P. BROWN HOVEY, FEARING BURR.

Library.

WILLIAM E. ENDICOTT, Chairman.
THE PROFESSOR OF BOTANY AND VEGETABLE PHYSIOLOGY AND THE PROFESSOR OF ENTOMOLOGY, *EX OFFICIIS;*

HENRY P. WALCOTT. FRANCIS H. APPLETON.
J. D. W. FRENCH. E. P. RICHARDSON.

Gardens.

JOHN G. BARKER, Chairman.
CHAIRMEN OF COMMITTEES ON FRUITS, FLOWERS, AND VEGETABLES, *EX OFFICIIS;* GEORGE S. HARWOOD, HENRY ROSS, E. L. BEARD.

Fruit.

E. W. WOOD, Chairman.

P. BROWN HOVEY.	CHARLES F. CURTIS.	O. B. HADWEN.
BENJAMIN G. SMITH.	J. W. MANNING.	WARREN FENNO.

Plants and Flowers.

WILLIAM H. SPOONER, Chairman.

PATRICK NORTON.	JAMES CARTWRIGHT.	J. H. WOODFORD.
F. L. HARRIS.	CHARLES W. ROSS.	DAVID ALLAN.

Vegetables.

CHARLES N. BRACKETT, Chairman.

JOSIAH CROSBY.	GEORGE W. PIERCE.	CHARLES E. GRANT.
WALTER RUSSELL.	SAMUEL HARTWELL.	M. W. CHADBOURNE.

Committee of Arrangements.

CHARLES H. B. BRECK, Chairman.
CHAIRMEN OF COMMITTEES ON FRUITS, FLOWERS, VEGETABLES, AND GARDENS, *EX OFFICIIS;*

JOHN C. HOVEY.	CHARLES H. HOVEY.	WILLIAM H. HALLIDAY.
C. M. ATKINSON.	JAMES COMLEY.	CHARLES F. CURTIS.
JOSEPH H. WOODFORD.		WARREN HEUSTIS.

MEMBERS FOR LIFE.

Change of residence, or any inaccuracies, should be promptly reported to the Secretary.

Adams, George E., Medford.
Albro, Charles, Taunton.
Alger, R. F., Hinsdale.
Allan, David, Belmont.
Ames, F. L., North Easton.
Ames, Frank M., Canton.
Ames, George, Boston.
Ames, P. Adams, "
Amory, Charles, "
Amory, Frederick, Brookline.
Amory, James S., Boston.
Anderson, Alexander, Hingham.
Andrews, Charles L., Swampscott.
Andrews, Frank W., Boston.
Andros, Milton, Brookline.
Appleton, Edward, Reading.
Appleton, Francis H., Peabody.
Appleton, Wm. S., Boston.
Atkins, Elisha, Belmont.
Avery, Edward, Boston.
Ayer, Adams, "
Ayling, Isaac, "

Bacon, George, Brookline.
Bailey, Edwin C., Concord, N. H.
Baker, William E., Boston.
Bancroft, John C., Milton.
Banfield, Francis L., Boston.
Barnard, Rev. C. F., "
Barnard, James M., "
Barnard, Robert M., Everett.
Barnes, Walter S., Somerville.
Barnes, William H., Boston.
Barney, Levi C., "
Barratt, James, Cambridge.
Barrett, Edwin S., Concord.
Barrows, Thomas, Dedham,
Bartlett, Edmund, Newburyport.
Bates, Amos, Hingham.
Bates, Caleb, Kingston.
Bayley, John P., Boston.
Beal, Alexander, Dorchester.
Beckford, D. R., Jr., Dedham.
Bell, Joseph H., Quincy.
Bemis, Emery, Grantville.
Berry, James, Boston.
Bickford, Weare D., Allston.
Birchard, Charles, Framingham.
Black, James W., Boston.
Blagg, Samuel, Newbern, N. C.
Blanchard, J. W., Boston.
Blaney, Henry, Brookline.
Blinn, R. D., Lexington.
Bliss, William, Springfield.
Bocher, Ferdinand, Boston.
Bockus, Charles E., Dorchester.
Bond, George W., Boston.
Borland, John N., New London, Ct.
Botume, John, Stoneham.
Bouvé, Thomas T., Boston.
Bowditch, Azell C., Somerville.
Bowditch, J. Ingersoll, Boston.
Bowditch, Wm. E., "
Bowker, William H., "
Brackett, Cephas H., Brighton.
Brackett, Charles N., Newton.
Bradish, Levi J., Boston.
Bragg, Samuel A. B., Mattapan.
Breed, Henry A., Lynn.
Bresee, Albert, Hortonville, Vt.
Brewer, John Reed, Boston.
Brewer, Otis, "
Brigham, William T., "
Bright, William E., Waltham.
Brimmer, Martin, Boston.
Brintnall, Benjamin, "
Brooks, Francis, Medford.
Brown, Charles E., Yarmouth, N. S.

Brown, Edward J.,	Brookline.	Clay, Henry,	Dorchester.
Brown G. Barnard,	Boston.	Cleary, Lawrence,	West Roxbury.
Brown, George B.,	"	Clement, Asa,	Dracut.
Brown, Jacob,	Woburn.	Cleveland, Ira,	Dedham.
Brownell, E. S.	Essex Junc., Vt.	Cobb, Albert A.,	Brookline.
Bruce, Nathaniel F.,	Stoneham.	Coburn, Isaac E.,	Everett.
Bullard, William S.	Boston.	Codman, James M.,	Brookline.
Burnett, Joseph,	Southborough.	Codman, Ogden,	Lincoln.
Burnham, T. O. H. P.,	Boston.	Coffin, G. Winthrop,	West Roxbury.
Burr, Fearing,	Hingham.	Coffin, William E.,	Boston.
Burr, Matthew H.,	"	Converse, E. S.,	Malden.
Buswell, Edwin W.,	New York.	Converse, Parker L.,	Woburn.
Buswell, Frank E.,	" "	Coolidge, Joshua,	Watertown.
Butler, Aaron,	Wakefield.	Copeland, Franklin,	West Dedham.
Butterfield, Wm. P.	Arlington.	Cox, George P.,	Malden.
		Coy, Samuel I.,	Boston.
Cadness, John,	Flushing, N. Y.	Craft, George,	Brookline.
Cains, William,	South Boston.	Crocker, George O.,	New Bedford.
Calder, Augustus P.,	Boston.	Crocker, Uriel,	Boston.
Capen, John,	"	Crosby, Josiah,	Arlington.
Carlton, Samuel A.,	Somerville.	Crowell, Philander,	Chelsea.
Carruth, Charles,	Boston.	Crowell, Randall H.,	"
Carruth, Nathan,	Dorchester.	Cummings, John,	Woburn.
Carter, Miss Sabra,	Wilmington,	Curtis, Charles F.,	Jamaica Plain.
Chamberlain, C. W.,	Arlington.	Curtis, George S.,	" "
Chapin, N. G.,	Brookline.	Cushing, Robert M.,	Boston.
Chapman, Edward,	Arlington.		
Chase, A. J.	Lynn.	Daggett, Henry C.,	Boston.
Chase, Daniel E.,	Somerville.	Damon, Samuel G.,	Arlington.
Chase, Hezekiah S.,	Boston.	Dana, Charles B.,	Brookline.
Chase, William M.,	Worcester.	Darling, Charles K.,	Boston.
Cheney, Benjamin P.,	Boston.	Davenport, Edward,	Dorchester.
Child, Francis J.,	Cambridge.	Davenport, Geo. E.,	Boston.
Child, William C.,	Medford.	Davenport, Henry,	"
Childs, Francis,	Charlestown.	Davis, Curtis,	Cambridge.
Childs, N. R.,	Dorchester.	Davis, Hervey,	Cambridgeport.
Claflin, Henry,	Brighton.	Dawson, Jackson,	Jamaica Plain.
Claflin, William,	Newton.	Deblois, Stephen G.,	Boston.
Clapp, Edward B.,	Dorchester.	Denny, Clarence H.	"
Clapp, E. W.,	Walpole.	Denny, R. S.,	Dorchester.
Clapp, James H.	Dorchester.	Denton, Eben,	Braintree.
Clapp, Lemuel,	"	Dewson, Francis A.,	Boston.
Clapp, William C.,	"	Dexter, F. Gordon,	"
Clark, Orus,	Boston.	Dickerman, Geo. H.	Somerville.
Clark, William S.,	Amherst.	Dickinson, Alex.,	Cambridgeport.
Clark, W. L.	Neponset.	Dike, Charles C.,	Stoneham.
Clarke, Miss Cora H.,	Jamaica Plain.	Dix, Joseph,	Boston.

Dorr, George, Dorchester.
Dove, George W. W., Andover.
Durant, William, Boston.
Durfee, Mrs. F. B., Fall River.
Durfee, George B., " "
Dutcher, F. J., Hopedale.
D'Wolf, John L., Boston.

Eaton, Horace, Quincy.
Eldridge, Azariah, Yarmouthport.
Eldridge, E. H., Boston.
Ellicott, J. P., Jamaica Plain.
Endicott, William E., Canton.
Eustis, William C., Hyde Park.
Everett, George, Concord.
Everett, Otis, Boston.
Everett, William, "
Ewell, William, Dorchester.

Fairchild, Charles, Belmont.
Farlow, John S., Newton.
Faxon, John, Quincy.
Fay, Mrs. R. L., Chelsea.
Fenno, J. B., Boston.
Fewkes, Edwin, Newton Highl'ds.
Fillebrown, John, Arlington.
Fisher, James, Boston.
Fisher, Warren, "
Flagg, Augustus, "
Fleming, Edwin, West Newton.
Fletcher, John W., Chelsea.
Flint, Charles L., Boston.
Flint, David B., Watertown.
Flynt, William N., Monson.
Foster, John H., Boston.
Fowle, William B., Auburndale.
Freeland, Chas. Wm., Boston.
Freeman, Abraham, Dorchester.
French, Jonathan, Boston.
French, J. D. W., "
Fuller, Henry Weld, "

Galvin, John, West Roxbury.
Gardner, Henry N., Belmont.
Gardner, John L., Brookline.
Gibbs, Wolcott, Cambridge.
Gillard, William, Boston.
Gilson, F. Howard, Reading.

Glover, Albert, Boston.
Glover, Joseph B. "
Goddard, A. Warren, Brookline.
Goddard, Mrs. M. T., Newton.
Gorham, James L., Jamaica Plain.
Gould, Francis, Arlington.
Gould, Samuel, Boston.
Gray, James, Wellesley.
Gregory, J. J. H., Marblehead.
Greig, George, Newton.
Grinnell, Joseph, New Bedford.
Groom, Thomas, Dorchester.
Grundel, Hermann, "
Guild, J. Anson, Brookline.

Hadwen, Obadiah B., Worcester.
Hall, Edwin A., Cambridgeport.
Hall, George A., Chelsea.
Hall, George R., Bristol, R. I.
Hall, John R., Boston.
Hall, Lewis, Cambridge.
Hall, Stephen A., Revere.
Hall, William F., Brookline.
Halliday, William H., Boston.
Hammond, Gard. G., "
Hammond, Samuel, "
Hanson, P. G., Woburn.
Harding, C. L., Cambridge.
Harding, George W., Dorchester.
Harding, Lewis B., Boston.
Harding, W. C., "
Hardy, F. D., Jr., Cambridgeport.
Harris, Charles, Cambridge.
Hastings, Edm. T., Boston.
Hathaway, Seth W., Marblehead.
Haughton, James, Boston.
Haven, Alfred W., Portsm'th, N. H.
Hayes, Daniel F., Exeter, N. H.
Hayes, Francis B., Boston.
Hayward, Daniel H., No. Cambridge.
Hazeltine, Hazen, Boston.
Head, Charles D., Brookline.
Hilbourn, A. J., Chelsea.
Hill, George, Arlington.
Hill, John, Stoneham.
Hilton, William, Boston.
Hitchings, E. H., "
Hodgkins, John E., Chelsea.

Hollis, George M., Grantville.
Hollis, John W., Brighton.
Holt, Mrs. S. A., Winchester.
Hooper, Robert C., Boston.
Hooper, Thomas, Bridgewater.
Horner, Mrs. C. N. S., Georgetown.
Hovey, Charles H., Cambridge.
Hovey, Charles M., "
Hovey, John C., Cambridgeport.
Hovey, P. Brown, "
Howe, George, Boston.
Howland, John, Jr., New Bedford.
Hubbard, Charles T., Boston.
Hubbard, G. G., Cambridge.
Hubbard, J. C., Boston.
Hubbard, William J., "
Huckins, J. W., "
Humphrey, F. J., Dorchester.
Humphrey, G. W., Dedham.
Hunneman, Jos. H., Boston.
Hunnewell, H. H. Wellesley.
Hunt, Franklin, Boston.
Hunt, Moses, "
Hunt, William H., Concord.
Hyde, James F. C., Newton.

Inches, Henderson, Boston.
Inches, Herman B., "

Jackson, Abraham, Boston.
Janvrin, William S., Revere.
Jeffries, John, Jr., Boston.
Jenks, Charles W., "
Joyce, Mrs. E. S., Medford.

Kakas, Edward, Medford.
Kendall, D. S., Woodstock, Ont.
Kendall, Edward, Cambridgeport.
Kendall, J. R., Woburn.
Kendrick, Mrs. H. P., Allston.
Kennard, Charles W., Boston.
Kennedy, George G., "
Kenney, John M., Roxbury.
Kent, John, Charlestown.
Keyes, E. W., Denver, Col.,
Keyes, George, Concord.
Kidder, Henry P., Boston.
Kidder, Nath'l T., Boston.
Kimball, A. P., "
King, Franklin, Dorchester.
King, William S. Boston.
Kingman, Abner A., Brookline.
Kingman, C. D., Middleborough.
Kinsley, Lyman, Cambridgeport.
Kittredge, E. A., Boston.

Lamb, Thomas, Boston.
Lancaster, Charles B., Newton.
Lawrence, Amos A., Brookline.
Lawrence, Edward, Charlestown.
Lawrence, James, Groton.
Lawrence, John, Boston.
Lee, Henry, "
Leeson, Joseph R., Newton Centre.
Lemme, Frederick, Natick.
Leuchars, Robert B., Boston.
Lewis, A. S., Framingham.
Lewis, William G., "
Lincoln, George, Hingham.
Locke, William H., Belmont.
Lodge, Giles H., Swampscott.
Loftus, John P., Boston.
Loomis, Jason B , Chelsea.
Lord, George C., Newton.
Loring, Alfred, South Hingham.
Loring, Caleb W., Boston.
Loring, George B., Salem.
Lovett, George L., Boston.
Low, Ariel, "
Lowder, John, Watertown.
Lowell, Augustus, Boston.
Luke, Elijah H., Cambridgeport.
Lumb, William, Boston.
Lunt, Charles H., Jamaica Plain.
Lyman, Theodore, Brookline.
Lyon, Henry, Charlestown.

Mahoney, John, Boston.
Mann, James F., Cambridge.
Mann, Jonathan, Cambridge.
Manning, Jacob W., Reading.
Manning, Mrs. L. B., "
Manning, Robert, Salem.
Mansfield, Henry S. Blackstone.

Marshall, Frederick, Everett.
Martin, Darius A., Chelsea.
Martin, John S., Boston.
Matthews, Nathan, "
McCarty, Timothy, Providence, R. I.
McClure, John, Revere.
Merriam, Herbert, Weston.
Merriam, M. H., Lexington.
Merrifield, W. T., Worcester.
Mills, Charles H., Boston.
Milmore, Martin, "
Minton, James, Dorchester.
Mixter, Charles, Boston.
Moore, John B., Concord.
Moore, John H., "
Morrill, Joseph, Jr., Boston.
Morse, Samuel F., "
Morse, Sidney B., "
Morse, William A., "
Motley, Thomas, West Roxbury.
Mudge, George A., Portsm'th, N. H
Mudge, George W., Lynn.
Munroe, Otis, Boston.

Needham, Daniel, Groton.
Newhall, George, Dorchester.
Newman, J. R., Winchester.
Newton, Rev. W. W., Boston.
Nichols, Mrs. F., Dorchester.
Nickerson, Albert W., Dedham.
Norton, Charles W., Allston.
Nourse, Benjamin F., Boston.
Nourse, Benjamin F., Cambridgeport.

Oakman, Hiram A., No. Marshfield.
Osgood, Jas. Ripley, Boston.
Otis, Theodore C., "
Oxnard, George D., "

Packer, Charles H., Boston.
Page, Thomas, "
Paine, Robert T., "
Palmer, John P., "
Park, John C., Somerville.
Parker, Augustus, Boston.
Parker, Harvey D., "
Parkman, Francis, Jamaica Plain.
Partridge Henry, Dunkirk, N. Y.
Partridge, Horace, Somerville.
Paul, Alfred W., Dighton.
Peabody, John E., Salem.
Pearce, John, West Roxbury.
Peck, O. H., Franklin.
Peck, W. G., Arlington.
Pierce, Silas, Boston.
Penniman, A. P., Waltham.
Perkins, Augustus T., Boston.
Perkins, Edward N., Brookline.
Perkins, William P., "
Perry, George W., Malden.
Philbrick, William D., Newton Centre.
Phillips, John C., Boston.
Pierce, Dean, Brookline.
Pierce, George W., Everett.
Pierce. Henry L., Dorchester.
Pierce, Samuel B., "
Poole, Benjamin C., Chelsea.
Poor, John R., Somerville.
Potter, Joseph S., Arlington.
Prang, Louis, Boston.
Pratt, Lucius G., West Newton.
Pratt, Robert M., Boston.
Pratt, William, Winchester.
Pray, Mark W., Malden.
Prescott, C. H., Cornwallis, N.S.
Prescott, Eben C., Boston.
Prescott, W. G., "
Prescott, William G., Quincy.
Preston, George H., Boston.
Preston, John, Dorchester.
Pringle, Cyrus G., Charlotte, Vt.
Proctor, Thomas P., West Roxbury.
Prouty, Gardner, Littleton.
Putnam, Joshua H., Brookline.

Ramsay, A. H., Cambridge.
Rand, Edward S., Boston.
Rand, Miss E. L., Newton Highl'ds.
Rand, Oliver J., Cambridgeport.
Rawson, W. W., Arlington.
Ray, Joseph G., Franklin.
Rayner, John J., Lexington.
Reed, George W., Boston.
Richards, John J., "
Richards, William B, "
Richardson, C. E., Cambridge.

Richardson, Geo. C., Cambridge.
Robbins, I. Gilbert, Boston.
Robbins, Nathan, Arlington.
Robeson, W. R., Boston.
Robinson, J. H., Dorchester.
Robinson, John, Salem.
Rogers, John H., Boston.
Ross, Henry, Newton.
Ross, M. Denman, Boston.
Ross, Waldo O., "
Ruddick, Dr. Wm. H., South Boston.
Russell, George, Woburn.
Russell, John E., Leicester.
Russell, Walter, Arlington.

Sampson, Geo. R., New York.
Sanborn, Amos C., Cambridgeport.
Sanford, O. S., Cordaville.
Sargent, Charles S., Brookline.
Sargent, Ignatius, "
Saville, Richard L., "
Sawyer, Timothy T., Charlestown.
Scott, Charles, Newton.
Scudder, C. W., Brookline.
Sears, J. Montgomery, Boston.
Seaver, Nathaniel, East Boston.
Seaver, Robert, Jamaica Plain.
Shaw, C. C., Milford, N. H.
Shaw, S. P., Cambridge.
Sheafe, Charles C., Boston.
Sheafe, William, Brookline.
Sheldon, Oliver S., Milton.
Shimmin, Charles F., Boston.
Shorey, John L., Lynn.
Skinner, Francis, Boston.
Slack, Charles W., "
Slack, Lewis, Brookline.
Smith, Benjamin G , Cambridge.
Smith, Calvin W., Grantville.
Smith, Charles H., Jamaica Plain.
Smith, Chauncey, Cambridge.
Smith, E. N., San Francisco.
Smith, George O., Boston.
Smith, James H., Needham.
Smith, W. B., Boston.
Snow, Eben, Cambridge.
Snow, Miss Salome H., Brunswick, Me.
Southmayd, John K., Boston.
Sparhawk, Edw'd C., Brighton.
Spaulding, Edward, Jamaica Plain.
Spaulding, M. D., Boston.
Speare, Alden, Newton Centre.
Springall, George, Malden.
Springer, John, Sterling.
Stetson, Nahum, Bridgewater.
Stickney, Rufus B., Somerville.
Stimpson, George, New York.
Stimpson, H. H., Cambridge.
Stone, Amos, Everett.
Stone, George F., Newton.
Stone, Phineas J., Charlestown.
Story, E. Augustus, Brighton.
Strong, William C., Newton Centre.
Sturgis, John H., Boston.
Sturgis, Russell, Jr., "
Sturtevant, E. Lewis, S. Framingham.
Sumner, Edward, Dedham.
Surette, Louis A., Concord.
Swain, Charles D., Roxbury.

Taft, John B., Boston.
Tappan, Charles, "
Taylor, Horace B., "
Thacher, Alfred C., Dorchester.
Thayer, Henry, N. Cambridge.
Thayer, Nathaniel, Boston.
Thurlow, Thomas C., Newburyport.
Tilton, Stephen W., Boston.
Todd, John, Hingham.
Tolman, Benjamin, Concord.
Tolman, Miss H. S., Boston.
Torrey, Everett, Charlestown.
Turner, John M., Dorchester.
Turner, Roswell W , Boston.
Turner, Royal W., Randolph.

Underwood, Guy C., Boston.
Upham, Henry, Brookline.

Vass, William J., Boston.
Vose, Benjamin C., Hyde Park.

Wainwright, Wm. L., Braintree.
Wakefield, E. H., Chelsea.

Walcott, Edward,	Pawtucket.
Walcott, Henry P.,	Cambridge.
Wales, George O.,	Braintree.
Walker, Edw. C. R ,	Dedham.
Walker, Samuel A.,	"
Walker, T. W.,	Waltham.
Walley, Mrs. W. P.,	Boston.
Ward, John,	Newton.
Wardwell, W. H.,	Newton Centre.
Ware, Benjamin P.,	Beach Bluff.
Warren, George W.,	Boston.
Washburn, Andrew,	Hyde Park.
Wason, Elbridge,	Brookline.
Waters, Edwin F.,	Newton Centre.
Waters, George F.,	Newton.
Watts, Isaac,	Belmont.
Webber, Aaron D.,	Boston.
Weld, Aaron D.,	West Roxbury.
Weld, Dr. Moses W.,	Boston.
Weld, Richard H.,	"
Weld, William G.,	Brookline.
Weston, Leonard W.,	Lincoln.
Weston, Seth,	Revere.
Wetherell, Leander,	Boston.
Wheelwright, A. C.,	"
Whipple, John A.,	"
Whitcomb, Wm. B.,	Medford.
White, Benjamin C.,	Boston.
White, Edward A.,	Boston.
White, Francis A.,	Brookline.
Whitely, Edward,	Cambridge.
Whiting, Nathaniel,	Brookline.
Whitmore, C. O.,	Boston.
Whittle, George W.,	Somerville.
Whytal, Thomas G.,	New York.
Wilbur, G. B.,	Watertown.
Wilcutt, Levi L.,	West Roxbury.
Wilder, Edw. Baker,	Dorchester.
Wilder, Henry A.,	Boston.
Wilder, Marshall P.,	Dorchester.
Willard, E. W.,	Newport, R. I.
Williams, Aaron D.,	Boston.
Williams, Benj. B ,	"
Williams, Philander,	Taunton.
Willis, George W.,	Chelsea.
Willis, J. C.,	Boston.
Wilson, Henry W.,	South Boston.
Wilson, Wm. Power,	Boston.
Winship, F. Lyman,	Brighton.
Winship, Herman,	"
Woerd, Charles V.,	Waltham.
Woerd, C. V., Jr.,	"
Wood, Luke H.,	Marlborough.
Wood, R. W.,	Jamaica Plain.
Wood, William K.,	West Newton.
Woods, Henry,	Dorchester.
Woodward, Royal,	Brookline.
Wright, George C.,	West Acton.
Wrisley, Frank,	New York.

ANNUAL MEMBERS.

Abbott, S. L., M. D., Boston.
Adams, Charles F., Quincy.
Adams, C. S., Framingham.
Allen, Andrew F., Arlington.
Allen, Calvin, Boston.
Allen, Nathaniel T., West Newton.
Ames, R. W., Boston.
Anderson, Charles J., Longwood.
Atkinson, Chas. M., Brookline.
Atkinson, Edward, "
Atkinson, W. B., Newburyport.

Bacon, Augustus, Boston
Bacon, William, "
Bard, James, Framingham.
Barker, John G., Lynn.
Barnes, Parker, Boston.
Batchelder, G. W., Dorchester.
Beard, Edward L., Cambridge.
Beebe, J. Arthur, Boston.
Bird, Charles, Revere.
Bird, John L., Dorchester.
Bliss, B. K., New York.
Bock, William A., N. Cambridge.
Bolles, Matthew, Boston.
Bolles, William P., "
Bolton, John B., Somerville.
Boott, William, Boston.
Bowditch, E. Francis, Framingham.
Bradlee, John T., Boston.
Breck, Charles H., Brighton.
Breck, Charles H. B, "
Brewer, Thomas M., Boston.
Brooks, George, Brookline.
Brown, A. S., Jamaica Plain.
Brown, Atherton T., Boston.
Brown, Benjamin F., Charlestown.
Brown, Jona. Jr., Somerville.
Brown, Joseph T., Boston.
Bryant, G. J. F., "
Bull, E. W., Concord.
Bullard, Calvin, Boston.
Burley, Edward, Beverly.
Burr, Charles C., Newton.
Butler, Edward, Wellesley.

Capen, Aaron D., Mattapan.
Carter, Maria E., Woburn.
Cartwright, James, Wellesley.
Chadbourne, M. W., Watertown.
Chaffin, John C., Newton.
Chapin, Gardner S., Arlington.
Chapin, George H., Watertown.
Chase, Henry L., Lynn.
Chase, Joseph S., Malden.
Cheney, Amos P., South Natick.
Clark, James W., Framingham.
Clark, Joseph, Canton.
Clark, Joseph W., Dedham.
Cobb, Jonathan H., "
Coe, Henry F., West Roxbury.
Comley, James, Lexington.
Cox, James F., Abington.
Crafts, William A., Boston.
Crosby, J. Allen, Jamaica Plain.
Cruickshanks, J. T., Natick.
Curtis, Daniel T., Boston.
Curtis, Joseph H., "

Darling, Moses, Jr., South Boston.
Davenport, A. M., Watertown.
Davis, Frederick, Newton.
Davis, James, Boston.
Davis, Thomas M., Cambridgeport.
Day, George B., Boston.
Dean, A. J., "
Dolbear, Mrs. Alice J., Somerville.
Doogue, William, Boston.
Duffley, Daniel, Brookline.
Dupee, James A., "

Dyer, Mrs. E. D., Eyota, Minn.

Eaton, Jacob, Cambridgeport.
Edgar, William, Newtonville.
Ewings, Luther B., Boston.

Falconer, John, Rochester.
Falconer, William, Cambridge.
Farrier, Amasa, Stoneham.
Farrier, Mrs. C., "
Faxon, Edwin, Jamaica Plain.
Fay, Henry G., Brookline.
Felton, Arthur W., West Newton.
Fenno, Warren, Revere.
Fletcher, Edwin, Acton.
Foster, Joshua T., Medford.
Fowle, Charles L., Dorchester.
Fowle, George W., Jamaica Plain.
Fowle, Henry D., Boston.
French, William E., "
Frost, George, West Newton.
Frost, Stiles, Boston.
Fuller, William G., Stoneham.

Gane, Henry A., West Newton.
Gardiner, Claudius B., Newburyport.
Gardner, John, Dedham.
Garfield, Charles, Medford.
Gaut, Samuel N., Somerville.
Gilbert, John, Boston.
Gilbert, Samuel, "
Gilbert, W. A., Neponset.
Gill, Mrs. E. M., Medford.
Gleason, C. W., Boston.
Gleason, Herbert, Malden,
Godbold, G. A., Chelsea.
Goddard, Thomas, Boston.
Goodwin, Lester, Brighton.
Gould, William P., Jamaica Plain.
Grant, Charles E., Boston.
Graves, Frank H., West Newton.
Gray, Howard, Dorchester.
Gray, William Jr., "
Gray, William, 3d, "
Greene, Malcolm H., "
Grew, Henry, "
Guerineau, Louis, Malvern, Ark.

Hall, William T., Revere.
Hamlin, Delwin A., South Boston.
Harris, Miss Ellen M., Jamaica Plain.
Harris, Frederick L., South Natick.
Hartwell, Samuel, Lincoln.
Harwood, George S., Newton.
Haskell, Edward, New Bedford.
Hatch, Samuel, Boston.
Hayes, John L., Cambridge.
Hayward, George P., Hingham.
Hazleton, H. L., Boston.
Hersey, Alfred H., Hingham.
Hersey, Edmund, "
Heustis, Warren, Belmont.
Hews, Albert H., No. Cambridge.
Higbee, Charles H., Salem.
Hill, Benjamin D., Peabody.
Hill, Miss Katie A., Lowell.
Hinckley, Mrs. D. F., Chelsea.
Howe, Rufus, Marlborough.

Ireland, George W., Somerville.

Jameson, G. W., East Lexington.
Jones, Moses, Brookline.
Jordan, Samuel, Yarmouth.

Kelsey, Fred W., Waverly, N. Y.
Kendall, Jonas, Framingham.
Kennard, Martin P., Brookline.
Kenrick, Miss A. C., Newton.

Lamprell, Simon, Marblehead.
Lang, John H. B., Dorchester.
Langworthy, I. P., Chelsea.
Leavens, E. W., Malden.
Lee, Francis H., Salem.
Livermore, Miss M., Mt. Auburn.
Loring, Charles G., Boston.
Loring, John A., "
Lothrop, David W., West Medford.
Lothrop, H. A., Sharon.
Lothrop, Thornton K., Boston.
Lowell, John, Newton.

Marcou, Mrs. J., Cambridge.
Markoe, G. F. H., Boston.

May, F. W. G., Boston.
McDermott, Andrew, "
McIntosh, A. S., Boston.
McLaren, Anthony, Forest Hills.
Mellen, George M., Brookline.
Merrill, J. Warren, Cambridgeport.
Merrill, S. A., Danvers.
Minton, Peter J., Forest Hills.
Morandi, Francis, Malden.
Morris, Thomas D., Boston.
Morrison, Hugh, Bay View.
Morton, James H., Boston.
Murray, Daniel D., Brookline.
Muzzey, Rev. A. B., Cambridge.

Nightingale, Crawford, Dorchester.
Norton, Michael H., Boston.
Norton, Patrick, "
Noyes, George N., Auburndale.
Nugent, James, Boston.

O'Brien, James, Jamaica Plain.
Oldreive, Richard, Newton.
Olney, Richard, West Roxbury.
Owen, John, Cambridge.

Park, William D., Boston.
Parker, John, "
Parsons, William, "
Patterson, James, Cambridge.
Payson, Samuel R., Boston.
Phillips, Nathaniel, Dorchester.
Pickering, Mrs. E. C., Cambridge.
Plimpton, W. P., West Newton.
Power, Charles J., S. Framingham.
Pratt, Mrs. Mary L, Hingham.
Pratt, Samuel, Chelsea.
Prince, Thomas, Boston.
Putnam, Charles A., Salem.
Putnam, Henry W., "

Randall, Macey, Sharon.
Ranlett, S. A., Melrose.
Richards, John S., Brookline.
Richardson, E. P., Lawrence.
Richardson, Horace, Framingham.
Ridler, Charles E., Kingston.
Roberts, Edward, Hyde Park.
Rogers, John F., Cambridge.
Ross, Charles W., Newtonville.
Russell, George, Boston.

Safford, Fred'k M, Dorchester.
Saunders, Miss M. T., Salem.
Saville, George, Quincy.
Sawtell, J. M, Fitchburg.
Schlegel, Adam, Boston.
Schmitt, Georg A., Brookline.
Scott, A. E., Lexington.
Scott, George H., Allston.
Scudder, Samuel H., Cambridge.
Shattuck, F. R., Boston.
Shedd, Abraham B., Lexington.
Shedd, Arthur B., "
Shepherd, C. W., West Newton.
Sheppard, Edwin, Lowell.
Sherman, Japhet, Medford.
Simpson, Michael H., Saxonville.
Sleeper, John S., Boston.
Snow, Eugene A, Melrose.
Southworth, Edward, Quincy.
Spooner, William H, Jamaica Plain.
Sprague, Charles J., Boston.
Squire, John P., Arlington.
Starbird, Louis D., Malden.
Stevenson, Hamilton, Woburn.
Stone, Eliphalet, Dedham.
Stone, Samuel G., Charlestown.
Storer, Charles, Natick.
Story, Miss Sarah W., Brighton.
Strahan, Thomas, Chelsea.
Sullivan, J. L. D., Somerville.
Swan, Charles W., Boston.

Tailby, Joseph, Wellesley.
Talbot, Josiah W., Norwood.
Tapper, Thomas, Canton.
Tobey, Miss M. B., Brookline.
Todd, Jacob, Boston.
Torrey, Bradford, "
Trautman, Martin, Boston.
Turner, Nathaniel W., "

Underwood, Wm. J., Belmont.
Van der Veur, P. W., New York.
Vaughan, J. C., Chicago, Ill.
Vinton, Mrs. C. A., Boston.

Walker, Charles H., Chelsea.
Walker, Joseph T., Boston.
Walker, William P., Somerville.
Watson, David, Malden.
Webster, John, Salem.
Wellington, Chas. A., E. Lexington.
Wellington, Jos. V., Cambridge.
Wells, Benjamin T., Boston.
Weston, Mrs. L. P., Danvers.
Wheatland, Henry, Salem.
Wheeler, Miss Ann C., Cambridgeport.
Wheildon, Wm. W., Concord.
White, Nelson B., Norwood.
Whitney, Joel, Winchester.
Whiton, Starkes, Hingham Centre.
Wilde, Hiram, Randolph.
Williams, Dudley, Jamaica Plain.
Wilmarth, H. D., " "
Wilson, B. Osgood, Watertown.
Wilson, George W., Malden.
Wiswall, Henry M., Watertown.
Withington, Henry H., Jamaica Plain.
Wolcott, Mrs. J. W., Boston.
Wood, Mrs. Anna D., West Newton.
Wood, Miss C. S., " "
Wood, E. W., " "
Woodford, Jos. H., Newton.

Zirngiebel, Denys, Needham.

EXTRACTS FROM THE CONSTITUTION AND BY-LAWS.

SECTION XXVI. — Life Members.

The payment of thirty dollars shall constitute a Life Membership, and exempt the member from all future assessments; and any member having once paid an admission fee, may become a Life Member by the payment of twenty dollars in addition thereto.

SECTION XXVII. — Admission Fee and Annual Assessment.

Every subscription member, before he receives his Diploma, or exercises the privileges of a member, shall pay the sum of ten dollars as an admission fee, and shall be subject afterwards to an annual assessment of two dollars.

SECTION XXIX. — Discontinuance of Membership.

Any member who shall neglect for the space of two years to pay his annual assessment, shall cease to be a member of the Society, and the Treasurer shall erase his name from the List of Members.

The attention of Annual Members is particularly called to Section XXIX.

HONORARY MEMBERS.

A * denotes the member deceased. Correspondents of the Society and others will confer a favor by communicating to the Secretary information of the decease, change of residence, etc., of Honorary or Corresponding Members.

*Benjamin Abbott, LL. D., Exeter, N. H.
*John Abbott, Brunswick, Me.
*Hon. John Quincy Adams, LL. D., late President of the United States, Quincy.
*Prof. Louis Agassiz, Cambridge.
*William T. Aiton, late Curator of the Royal Gardens, Kew, England.
Thomas Allen, Ex-President of the St. Louis Horticultural Society, St. Louis, Mo., and Pittsfield, Mass.
*Hon. Samuel Appleton, Boston.
*Hon. James Arnold, New Bedford.
*Edward Nathaniel Bancroft, M. D., late President of the Horticultural and Agricultural Society of Jamaica.
*Hon. Philip P. Barbour, Virginia.
*Don Angel Calderon de la Barca, late Spanish Minister at Washington.
*Robert Barclay, Bury Hill, Dorking, Surrey, England.
*James Beekman, New York.
*L'Abbe Berlèse, Paris.
*Nicholas Biddle, Philadelphia.
*Dr. Jacob Bigelow, Boston.
*Mrs. Lucy Bigelow, Medford.
*Le Chevalier Soulange Bodin, late Secrétaire Général de la Société d'Horticulture de Paris.
Hon. George S. Boutwell, Groton.
*Josiah Bradlee, Boston.
*Hon. George N. Briggs, Pittsfield.
*Hon. James Buchanan, late President of the United States, Lancaster, Penn.
*Jesse Buel, late President of the Albany Horticultural Society, Albany, N. Y.
*Hon. Edmund Burke, late Commissioner of Patents, Washington, D. C.
*Augustin Pyramus de Candolle, Geneva.
Hon. Horace Capron, Ex-U. S Commissioner of Agriculture, Washington, D. C.
*Commodore Isaac Chauncey, U. S. Navy, Brooklyn, N. Y.

*Ward Chipman, late Chief Justice of New Brunswick, St. John.
*Lewis Clapier, Philadelphia.
*Hon. Henry Clay, Lexington, Ky.
H. W. S. Cleveland, Chicago, Ill.
*Admiral Sir Isaac Coffin, Bart., England.
*Zaccheus Collins, late President of the Pennsylvania Horticultural Society, Philadelphia.
*Roswell L. Colt, Paterson, N. J.
Caleb Cope, Ex-President of the Pennsylvania Horticultural Society, Philadelphia.
*William Coxe, Burlington, N. J.
*John P. Cushing, Watertown.
*Charles W. Dabney, late U. S. Consul, Fayal, Azores.
*Hon. John Davis, LL. D., Boston.
*Sir Humphry Davy, London.
*Gen. Henry Alexander Scammel Dearborn, Roxbury.
*James Dickson, late Vice-President of the Horticultural Society of London.
*Mrs. Dorothy Dix, Boston.
*Capt. Jesse D. Elliot, U. S. Navy.
*Hon. Stephen Elliot, LL. D., Charleston, S. C.
*Hon. Henry L. Ellsworth, late Commissioner of Patents, Washington, D C.
*Allyn Charles Evanson, late Secretary of the King's County Agricultural Society, St. John, N. B.
*Hon. Edward Everett, LL. D., Boston.
*Hon. Horace Everett, Vermont.
*F. Faldermann, late Curator of the Imperial Botanic Garden, St. Petersburg.
*Hon. Millard Fillmore, late President of the United States, Buffalo, N. Y.
*Dr. F. E. Fischer, late Professor of Botany at the Imperial Botanic Garden, St. Petersburg.
*Hon. Theodore Frelinghuysen, late President of the American Agricultural Society, New Brunswick, New Jersey.
*Joseph Gales, Jr., late Vice-President of the Horticultural Society, Washington, D. C.
*George Gibbs, New York.
*Stephen Girard, Philadelphia.
*Hon. Robert T. Goldsborough, Talbot County, Maryland.
*Ephraim Goodale, South Orrington, Maine.
*Mrs. Rebecca Gore, Waltham.
*Hon. John Greig, late President of the Domestic Horticultural Society, Canandaigua, N. Y.
*Mrs. Mary Griffith, Charlies Hope, N. J.
*Gen. William Henry Harrison, late President of the United States, North Bend, O.
*S. P. Hildreth, M. D., Marietta, O.
*Thomas Hopkirk, late President of the Glasgow Horticultural Society.
*David Hosack, M. D. late President of the New York Horticultural Society.

*Lewis Hunt, Huntsburg, O.
*Joseph R. Ingersoll, late President of the Pennsylvania Horticultural Society, Philadelphia.
*Gen. Andrew Jackson, late President of the United States, Nashville, Tenn.
*Mrs. Martha Johonnot, Salem.
*Jared Potter Kirtland, M. D., LL. D., East Rockport, O.
*Thomas Andrew Knight, late President of the Horticultural Society of London.
*Gen. La Fayette, La Grange, France.
*Le Comte De Lasteyrie, late Vice-President of the Horticultural Society of Paris.
L. A. H. Latour, M. P., 1396 St. Catherine street, Montreal, Canada.
*Baron Justus Liebig, Giessen, Germany.
*Prof. John Lindley, late Secretary of the Horticultural Society of London.
Franklin Litchfield, U. S. Consul at Puerto Cabello, Venezuela.
*Joshua Longstreth, Philadelphia.
*Nicholas Longworth, Cincinnati.
*Jacob Lorillard, late President of the New York Horticultural Society.
*John C. Loudon, London.
*Hon. John A. Lowell, Boston.
*Baron Charles Ferdinand Henry Von Ludwig, late Vice-President of the South African Literary and Scientific Institution, Cape Town, Cape of Good Hope.
*Hon. Theodore Lyman, Brookline.
Col. Theodore Lyman, Brookline.
*Hon. James Madison, late President of the United States, Montpelier, Va.
*Mrs. Charlotte Marryatt, Wimbledon, near London.
Joseph Maxwell, Rio Janeiro.
D. Smith McCauley, U. S. Consul-General, Tripoli.
*Hon. Isaac McKim, late President of the Horticultural Society of Maryland, Baltimore.
Rev. James H. Means, Dorchester, Mass.
*James Mease, M. D., Philadelphia.
*Lewis John Mentens, Brussels, Belgium.
*Hon. Charles F. Mercer, Virginia.
*François André Michaux, Paris.
Donald G. Mitchell, New Haven, Conn.
*Samuel L. Mitchill, M. D., LL. D., New York.
*Hon. James Monroe, late President of the United States, Oak Hill, Va.
*Alfred S. Monson, M. D., late President of the New Haven Horticultural Society, New Haven, Conn.
*Hon. A. N. Morin, Montreal, Canada.
*Théodore Mosselmann, Antwerp, Belgium.
Baron R. Von Osten Sacken, Heidelberg, Germany.
Baron Ottenfels, Austrian Minister to the Ottoman Porte.
John Palmer, Calcutta.

*Hon. Joel Parker, LL. D., Cambridge.
Samuel B. Parsons, Flushing, N. Y.
*Hon. Thomas H. Perkins, Brookline.
*A. Poiteau, late Professor in the Institut Horticole de Fromont.
*Hon. James K. Polk, late President of the United States, Nashville, Tenn.
*John Hare Powel, Powelton, Pa.
*Henry Pratt, Philadelphia.
*William Prince, Flushing, N. Y.
*Rev. George Putnam, D. D., Roxbury.
*Col. Joel Rathbone, late President of the Albany and Rensselaer Horticultural Society, Albany, N. Y.
*Archibald John, Earl of Roseberry, late President of the Caledonian Horticultural Society.
*Joseph Sabine, late Secretary of the Horticultural Society of London.
*Don Ramon de la Sagra, Havana, Cuba.
Henry Winthrop Sargent, Fishkill, N. Y.
*Sir Walter Scott, Abbotsford, Scotland.
*John Shepherd, late Curator of the Botanic Garden, Liverpool, England.
*John S. Skinner, late Editor of the American Farmer, Baltimore, Md.
George W. Smith, Boston.
*Stephen H. Smith, late President of the Rhode Island Horticultural Society.
*Hon. Charles Sumner, Boston.
*Hon. John Taliaferro, Virginia.
*Gen. James Talmadge, late President of the American Institute, N. Y.
*Gen. Zachary Taylor, late President of the United States, Baton Rouge, La.
*James Thacher, M. D., Plymouth.
John J. Thomas, Union Springs, N. Y.
*James W. Thompson, M. D., Wilmington, Del.
*Grant Thorburn, New York.
*M. Du Petit Thouars, Paris.
*Le Vicomte Hericart de Thury, late President of the Horticultural Society of Paris.
*Mons. Tougard, late President of the Horticultural Society of Rouen, France.
*Gen. Nathan Towson, late President of the Horticultural Society, Washington, D. C.
*Hon. John Tyler, late President of the United States, Williamsburg, Va.
*Rev. Joseph Tyso, Wallingford, England.
*Hon. Martin Van Buren, late President of the United States, Kinderhook, N. Y.
*Federal Vanderburg, M. D., New York.
*Jean Baptiste Van Mons, M. D., Brussels, Belgium.
*Gen. Stephen Van Rensselaer, Albany, N. Y.
*Joseph R. Van Zandt, Albany, N. Y.
*Benjamin Vaughan, M. D., Hallowell, Me.
*Petty Vaughan, London.

*Rev. N. Villeneuve, Montreal, Canada.
*Pierre Phillippe André Vilmorin, Paris.
*James Wadsworth, Geneseo, N. Y.
*Nathaniel Wallich, M. D., late Curator of the Botanic Garden, Calcutta.
*Malthus A. Ward, M. D., late Professor in Franklin College, Athens, Ga.
*Hon. Daniel Webster, Marshfield.
*Hon. John Welles, Boston.
*Jeremiah Wilkinson, Cumberland, R. I.
Hon. Robert C. Winthrop, Boston.
*Frederick Wolcott, Litchfield, Conn.
*Ashton Yates, Liverpool, England.
*Lawrence Young, late President of the Kentucky Horticultural Society, Louisville.

CORRESPONDING MEMBERS.

A * denotes the members deceased.

*John Adlum, Georgetown, D. C.
Don Francisco Aguilar, U. S. Vice-Consul at Maldonado, Banda Oriental del Uruguay.
*Mons. Alfroy, Lieusaint, France.
James T. Allan, Ex-President of the Nebraska State Horticultural Society, Omaha, Neb.
A. B. Allen, New York.
Rev. Thomas D. Anderson, South Boston.
*Thomas Appleton, late U. S. Consul at Leghorn, Italy.
*Col. Thomas Aspinwall, late U. S. Consul at London, Brookline.
P. M. Augur, State Pomologist, Middlefield, Conn.
*Isaac Cox Barnet, late U. S. Consul at Paris.
Patrick Barry, Chairman of the General Fruit Committee of the American Pomological Society, Rochester, N. Y.
*Augustine Baumann, Bolwiller, Alsace.
*Eugéne Achille Baumann, Rahway, N. J.
*Joseph Bernard Baumann, Bolwiller, Alsace.
Napoleon Baumann, Bolwiller, Alsace.
D. W. Beadle, St. Catherine's, Ontario.
Prof. W. J. Beal, Lansing, Michigan.
*Noel J. Becar, Brooklyn, N. Y.
*Edward Beck, Worton College, Isleworth, near London.
Rev. Henry Ward Beecher, Peekskill, N. Y.
Louis Édouard Berckmans, Rome, Ga.
Prosper J. Berckmans, Augusta, Ga.
*Alexander Bivort, late Secretary of the Société Van Mons, Fleurus, Belgium.
*Tripet Le Blanc, Paris.
*Charles D. Bragdon, Pulaski, Oswego Co., N. Y.
*William D. Brincklé, M. D., Philadelphia.
*George Brown, late U. S. Commissioner to the Sandwich Islands, Beverly.
*John W. Brown, Fort Gaines, Ga.
Dr. Nehemiah Brush, East Florida.
Arthur Bryant, Sr., Ex-President of the Illinois State Horticultural Society, Princeton, Ill.
*Robert Buist, Philadelphia.
*Dr. E. W. Bull, Hartford, Conn.
William Bull, Chelsea, England.

Rev. Robert Burnet, Ex-President of the Ontario Fruit Growers' Association, Pictou, N. S.
Alexander Burton, United States Consul at Cadiz, Spain
Isidor Bush, Bushberg, Jefferson Co., Mo.
George W. Campbell, Delaware, Ohio.
*Francis G. Carnes, New York.
*Col. Robert Carr, Philadelphia.
*Rev. John O. Choules, D. D., Newport, R. I.
*Rev. Henry Colman, Boston.
*James Colvill, Chelsea, England.
Benjamin E. Cotting, M. D., Boston.
*Samuel L. Dana, M. D., Lowell.
J. Decaisne, Professeur de Culture au Muséum d'Histoire Naturelle, Jardin des Plantes, Paris.
*James Deering, Portland, Me.
*H. F. Dickehut.
*Sir C. Wentworth Dilke, Bart., London.
*Hon. Allen W. Dodge, Hamilton.
Rev. H. Honywood D'Ombrain, Westwell Vicarage, Ashford, Kent, England.
*Andrew Jackson Downing, Newburg, N. Y.
Charles Downing, Newburg, N. Y.
Parker Earle, Cobden, Ill.
*F. R. Elliott, late Secretary of the American Pomological Society, Cleveland, O.
George Ellwanger, Rochester, N. Y.
*George B. Emerson, LL. D., Winthrop.
*Ebenezer Emmons, M. D. Williamstown.
*Andrew H. Ernst, Cincinnati, O.
*Nathaniel Fellows, Cuba.
*Henry J. Finn, Newport, R. I.
*W. C. Flagg, late Secretary of the American Pomological Society, Moro, Ill.
*Michael Floy, late Vice-President of the New York Horticultural Society, New York City.
*John Fox, Washington, D. C.
*Hon. Russell Freeman, Sandwich.
Andrew S. Fuller, Ridgewood, N. J.
Henry Weld Fuller, Roxbury.
Hon. Robert W. Furnas, President of the Nebraska State Horticultural Society, Brownville, Neb.
*Augustin Gande, late President of the Horticultural Society, Department of Sarthe, France.
*Robert H. Gardiner, Gardiner, Me.
*Benjamin Gardner, late U. S. Consul at Palermo, Sicily.
*Capt. James T. Gerry, U. S. Navy.
*Abraham P. Gibson, late U. S. Consul at St. Petersburg.
*R. Glendinning, Chiswick, near London.

Prof. George L. Goodale, Cambridge.
Charles W. Gordon, U. S. Consul at Rio Janeiro.
Prof. Asa Gray, Cambridge.
O. B. Hadwen, Ex-President of the Worcester County Horticultural Society, Worcester.
*Charles Henry Hall, New York.
*Abraham Halsey, late Corresponding Secretary of the New York Horticultural Society, New York.
*Dr. Charles C. Hamilton, late President of the Fruit Growers' Association and International Show Society of Nova Scotia, Canard.
*Rev. Thaddeus Mason Harris, D. D., Dorchester.
*Thaddeus William Harris, M. D., Cambridge.
*John Hay, late Architect of the Caledonian Horticultural Society.
*Bernard Henry, late U. S. Consul at Gibraltar, Philadelphia.
Shirley Hibberd, Editor of the Gardener's Magazine, London.
*J. J. Hitchcock, Baltimore.
Robert Hogg, LL. D., Editor of the Journal of Horticulture, London.
*Thomas Hogg, New York.
Thomas Hogg, New York.
J. C. Holding, Ex-Treasurer and Secretary of the Cape of Good Hope Agricultural Society, Cape Town, Africa.
Rev. S. Reynolds Hole, Caunton Manor, Newark, Nottinghamshire, England.
Fisher Holmes, Sheffield, England.
Sir Joseph Hooker, K. C. S. I., Director of the Royal Botanic Garden, Kew, England.
Josiah Hoopes, West Chester, Penn.
Prof. E. N. Horsford, Cambridge.
*Sanford Howard, Chicago, Ill.
*Dr. William M. Howsley, late President of the Kansas State Horticultural Society, Leavenworth.
*Isaac Hunter, Baltimore, Md.
*Isaac Hurd, Cincinnati, Ohio.
George Husmann, Professor of Horticulture in the University of the State of Missouri, Columbia.
*Prof. Isaac W. Jackson, Union College, Schenectady, N. Y.
Thomas P. James, Cambridge.
Edward Jarvis, M. D., Dorchester.
J. W. P. Jenks, Middleborough.
William J. Johnson, M. D., Fort Gaines, Ga.
Samuel Kneeland, M. D., Boston.
*Mons. Laffay, St. Cloud, near Paris, France.
*David Landreth, late Corresponding Secretary of the Pennsylvania Horticultural Society, Bristol, Pa.
C. C. Langdon, Mobile, Alabama.
*Dr. William LeBaron, late State Entomologist, Geneva, Ill.
G. F. B. Leighton, President of the Norfolk Horticultural and Pomological Society, Norfolk, Va.

*E. S. H. Leonard, M. D., Providence, R. I.
*André Leroy, Author of the Dictionnaire de Pomologie, Angers, France.
J. Linden, Ghent, Belgium.
Hon. George Lunt, Scituate.
*F. W. Macondray, San Francisco, Cal.
*James J. Mapes, LL. D., Newark, N. J.
*A. Mas, late President of the Horticultural Society, Bourg-en-Bresse, France.
Dr. Maxwell T. Masters, Editor of the Gardeners' Chronicle, London.
*James Maury, late U. S. Consul at Liverpool, England.
T. C. Maxwell, Geneva, N. Y.
*William Sharp McLeay, New York.
*James McNab, late Curator of the Botanic Garden, Edinburgh, Scotland.
Thomas Meehan, Editor of the Gardener's Monthly, Germantown, Pa.
*Allan Melvill, New York.
John Miller, M. D., Secretary of the Horticultural and Agricultural Society of Jamaica.
*Stephen Mills, Flushing, N. Y.
*Charles M'Intosh, Dalkeith Palace, near Edinburgh.
J. E. Mitchell, Philadelphia.
*Giuseppe Monarchini, M. D., Canea, Isle of Candia.
Édouard Morren, Editor of the Belgique Horticole, Liége, Belgium.
*Horatio Newhall, M. D., Galena, Ill.
*David W. Offley, late U. S. Consular Agent, Smyrna, Turkey.
James Ombrosi, U. S. Consul, Florence, Italy.
*John J. Palmer, New York.
*Victor Paquet, Paris.
*John W. Parker, late U. S. Consul at Amsterdam, Holland.
*André Parmentier, Brooklyn, N. Y.
William Paul, Waltham Cross, London, N.
*Sir Joseph Paxton, M. P., Chatsworth, England.
*John L. Payson, late U. S. Consul at Messina, Sicily.
*Com. Matthew C. Perry, U. S. Navy, Charlestown.
*David Porter, late U. S. Chargé d' Affaires at the Ottoman Porte, Constantinople.
*Alfred Stratton Prince, Flushing, N. Y.
*William Robert Prince, Flushing, N. Y.
P. T. Quinn, Newark, N. J.
Rev. Rushton Radclyffe, London, England.
*William Foster Redding, Baltimore, Md.
D. Redmond, Ocean Springs, Miss.
Dr. S. Reynolds, Schenectady, N. Y.
*John H. Richards, M. D., Illinois.
Charles V. Riley, U. S. Entomological Commissioner, Washington, D. C.
*Mons. J. Rinz, Jr., Frankfort-on-the-Main, Germany.
*Thomas Rivers, Sawbridgeworth, Herts, England.
William Robinson, Editor of The Garden, London.
*Dr. J. Smyth Rogers, New York.

*Capt. William S. Rogers, U. S. Navy.
Bernard Rosier, M. D., Athens, Greece.
*Thomas Rotch, Philadelphia.
*George R. Russell, Roxbury.
John B. Russell, Newmarket, N. J.
*Rev. John Lewis Russell, Salem.
William Saunders, Department of Agriculture, Washington, D. C.
*William Shaler, late U. S. Consul-General at Havana, Cuba.
*William Shaw, New York.
*Caleb R. Smith, Burlington, N. J.
*Daniel D. Smith, Burlington, N. J.
*Gideon B. Smith, late Editor of the American Farmer, Baltimore, Md.
*John Jay Smith, Germantown, Penn.
*Horatio Sprague, late U. S. Consul at Gibraltar.
Robert W. Starr, Port William, Nova Scotia.
Dr. Joseph Stayman, Leavenworth, Kansas.
*Capt. Thomas Holdup Stevens, U. S. Navy, Middletown, Conn.
William Fox Strangeway, British Secretary of Legation at Naples, Italy.
Dr. J. Strentzel, Martinez, Cal.
*Judge E. B. Strong, Rochester, N. Y.
*James P. Sturgis, Canton, China.
William Summer, Pomaria, S. C.
Francis Summerest.
*Prof. Michele Tenore, late Director of the Botanic Garden at Naples, Italy.
*James Englebert Teschemacher, Boston.
*Robert Thompson, Chiswick, near London.
*George C. Thorburn, New York.
Prof. George Thurber, Editor of the American Agriculturist, New York.
*John Tilson, Jr., Edwardsville, Illinois.
*Cav. Doct. Vincenzo Tineo, Director of the Botanic Garden at Palermo.
*Luther Tucker, Editor of the Cultivator, Albany, N. Y.
Carey Tyso, Wallingford, England.
*Louis Van Houtte, Ghent, Belgium.
*Alexander Vattemare, Paris.
*Emilien de Wael, late Secretary of the Horticultural Society, Antwerp, Belgium.
John A. Warder, M. D., President of the Ohio State Horticultural Society, North Bend, O.
Anthony Waterer, Knapp Hill, near Woking, Surrey, England.
*J. Ambrose Wight, Editor of the Prairie Farmer, Chicago, Ill.
Benjamin Samuel Williams, Holloway, London, N.
Prof. John Wilson, Edinburgh University, Scotland.
*William Wilson, New York.
*Hon. J. F. Wingate, Bath, Me.
*Gen. Joshua Wingate, Portland, Me.
*Joseph Augustus Winthrop, Charleston, S. C.

CONTENTS.

PAGE

PREFATORY NOTE, ... 119

BUSINESS MEETING, April 2, 1881; Proceedings of American Pomological Society presented, p. 121; Annual Appropriations, 121; Amendment to Constitution and By-Laws, ... 121, 122

BUSINESS MEETING, May 7; Resolutions in memory of George B. Emerson, LL. D., Hon. John C. Gray, Henry Vandine, and E. Fred. Washburn, pp. 122–124; Decease of Hon. Andrews Breed announced, 124; Election of members, ... 125

BUSINESS MEETING, June 4; Resolutions in memory of Hon. Andrews Breed, pp. 125, 126; Letter from Mrs. Lucy B. Lowell, 126; Letter from John C. Gray, 127; Resignation of Treasurer, 127; Appointment of Treasurer, 127; Appointment of Librarian, ... 127

BUSINESS MEETING, July 2; No quorum, ... 128

BUSINESS MEETING, August 6; Vote concerning eligibility of officers rescinded, p. 128; Report on repairs of building, 128; Nominating Committees appointed, 128; Election of members, ... 129

BUSINESS MEETING, September 3; Report of Nominating Committee, 129; Declination of C. O. Whitmore as Chairman of Finance Committee, 129; Delegates to American Pomological Society, 130; Report on services of former Treasurer, 130; Election of members, ... 131

BUSINESS MEETING, October 1; Annual Election, pp. 131, 136; Proposals for membership, 131; Services of Charles O. Whitmore, 131; Decease of Samuel Downer announced, 132; Address of Dr. John A. Warder on Arboriculture, 132–136; Thanks from American Pomological Society, . . 136

BUSINESS MEETING, November 5; Appropriations recommended, pp. 136, 137; Decease of Hon. John A. Lowell announced, 137; Resolutions in memory of Samuel Downer, 137, 138; Vote concerning Arnold Arboretum, 138; Election of members, ... 138

BUSINESS MEETING, December 3; Resolutions in memory of Hon. John A. Lowell, pp. 139, 140; Reports of Committees on Flowers, Fruits, Vegetables, Publication and Discussion, and Library read, 141; Prospective Prize, 141; Report of Secretary and Librarian read, 141; List of Prizes for 1882 reported, 141; Election of member, ... 141

BUSINESS MEETING, December 10; Proposal of member, p. 142; Report of Committee of Arrangements read, 142; Report of Committee on Gardens read, 142; Schedule of Prizes adopted, 142; Remarks on Reports, 142; Announcement of Meetings for Discussion, 142; Correspondence with the Royal Horticultural Society and the Imperial German Academy of Naturalists, ... 143, 144

PAGE

BUSINESS MEETING, December 17, ... 145

MEETING FOR DISCUSSION; Native Plants for Winter Culture, by Mrs. T. L. Nelson, pp. 145–149; Discussion, ... 149–154

BUSINESS MEETING, December 24; Prospective Prize for Essay, . . 154, 155

MEETING FOR DISCUSSION; Ornamental Arboriculture, by John Robinson, pp. 155–170; List of Trees, 170–179; Discussion, ... 179–183

BUSINESS MEETING, December 31, ... 183

MEETING FOR DISCUSSION; Ornamental Arboriculture, ... 183–189

REPORT OF THE COMMITTEE ON PLANTS AND FLOWERS; New and Rare Plants and Flowers, pp. 190–198; Azalea and Rose Show, 198, 199; Rhododendron Show, 199–201; Rose Exhibition, 201–204; Annual Exhibition, 204–206; Chrysanthemum Show, 206; Miscellaneous Exhibits, 206–208; Prizes and Gratuities awarded, ... 209–226

REPORT OF THE COMMITTEE ON FRUITS, pp. 227–231; Notes on New Fruits, 232; Prizes and Gratuities awarded, ... 233–245

REPORT OF THE COMMITTEE ON VEGETABLES, pp. 246–249; Prizes and Gratuities awarded, ... 250–258

REPORT OF THE COMMITTEE ON GARDENS; Residence of Hon. Francis B. Hayes, pp. 258–264; Thomas C. Thurlow's Peach Orchard, 265–267; Marshall Miles's Peach Orchard, 267; John B. Moore's Peach Orchard and Vineyard, 267, 268; Estate of B. Perley Poore, 268; Statement of Marshall Miles, 269, 270; The Yellows, ... 271, 272

REPORT OF THE COMMITTEE OF ARRANGEMENTS, ... 273

MEETING OF THE AMERICAN POMOLOGICAL SOCIETY; Introductory Exercises, pp. 274–278; The Banquet, 278, 279; Address of President Hayes. 279, 280; Response of President Wilder, 281–283; Speech of Governor Long, 283, 284; Speech of Collector Beard, 285; Other Speeches, 285–291; Hymn by John G. Whittier, ... 288, 289

REPORT OF THE COMMITTEE ON PUBLICATION AND DISCUSSION, . . 292, 293

REPORT OF THE LIBRARY COMMITTEE, pp. 294–296; Library Accessions, . 296–313

REPORT OF THE SECRETARY AND LIBRARIAN, ... 314, 315

REPORT OF THE TREASURER, ... 316–319

REPORT OF THE FINANCE COMMITTEE, ... 318

MOUNT AUBURN CEMETERY, ... 320, 321

LIST OF EDIBLE FUNGI, by E. Lewis Sturtevant, ... 322–348

DATE OF FLOWERING OF TREES AND SHRUBS IN EASTERN MASSACHUSETTS, by John Robinson, ... 349

OFFICERS AND STANDING COMMITTEES FOR 1882, ... 359, 360

MEMBERS OF THE SOCIETY: Life, pp. 361–367; Annual, 368–371; Honorary, 372–376; Corresponding, ... 377–381

EXTRACTS FROM THE CONSTITUTION AND BY-LAWS, ... 371

A HISTORY

OF

AMERICAN HORTICULTURE.

The attention of Trustees and Librarians of Public Libraries, and of Horticulturists generally, is called to the History of the Massachusetts Horticultural Society, for fifty years, from its foundation in 1829. This work will be found of general interest, as the introduction comprises a sketch, much fuller than exists elsewhere, of the History of Horticulture in the United States, from the settlement of the country to the foundation of the Society, and the history of the Society onward is, in the language of President Hovey, in his address at the dedication of the present Hall of the Society, "the History of Horticulture in our country." It is handsomely printed, on an extra quality of paper, and embellished with a fine steel engraving of Gen. H. A. S. Dearborn, the first president, and heliotypes of the two Halls erected by the Society. Among other interesting matters, it contains an account of the foundation by the Society, of Mount Auburn Cemetery, the parent of all similar cemeteries in the country.

The work is furnished to members of the Society at cost, $2.50, and to others than members for $3, but will be supplied to public libraries and booksellers at the same price as to members. Please address the Secretary of the Society, at Horticultural Hall, Boston.

ROBERT MANNING,

Secretary.